

ADDITIONAL MATERIALS TOWARD A MONOGRAPH OF THE GENUS CALLICARPA. V

Harold N. Moldenke

CALLICARPA CANDICANS var. SUMATRANA (Miq.) Moldenke

Additional citations: INDOCHINA: Tonkin: Bois 255 (Ca--54658, W--1758019). State undetermined: Eberhardt 3327 [Thua-thien] (Ca--38107). MALAYA: Perak: Burkill 12418 (Ca--346270). MALAYAN ISLANDS: Aor [Johore]: M. R. Henderson 18202 (Bz--17465, Ca--318663). WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Luzon: Lete 193 (Ca--365687). INDONESIA: GREATER SUNDA ISLANDS: Java: Backer 9490 (Bz--17352); Sundalandschap. Urwaudenflora 3-6000 (Ut--49887). Kangean: Dommers 140 (Bz--17472). Sumatra: Backer 3113 [113] (Bz--17474); Collector undetermined 534 (Bz--17473); Lörzing 11140 (Bz--17476); Teijsmann 1159 H.B. (Bz--17475--isotype, Bz--17477--type, N--photo of type, Ut--53389--isotype, Z--photo of type), 3084 (Bz--17481), 3084 H.B. (Bz--17480, Ut--53388), 4381 H.B. (Bz--17478, Bz--17479, Ut--53390). CULTIVATED: Java: Herb. Hort. Bot. Bogor. XI.G.27 (Bz--25722, Bz--26518, Bz, N), s.n. (Bz--17471). MOUNTED ILLUSTRATIONS: Sims in Curtis, Bot. Mag. 47: pl. 2107. 1819 (N).

CALLICARPA CATHAYANA Chang, Acta Phytotax. Sin. 1: 305. 1951.

Bibliography: Chang, Acta Phytotax. Sin. 1: 305. 1951; G. Taylor, Ind. Kew. Suppl. 13: 21. 1966; Moldenke, Résumé Suppl. 14: 3. 1966.

Nothing is known to me of this species since the work in which it was originally described has not yet been available to me. The plant is said to inhabit the provinces of Kiangsi, Kiangsu, Kwangtung, and Kwangsi, China.

CALLICARPA CAUDATA Maxim., Bull. Acad. St. Pétersb. 31: 76. 1886.

Synonymy: Callicarpa caudata var. magna H. J. Lam, Verbenac. Malay. Arch. 60. 1919. Callicarpa caudata var. typica H. J. Lam, Verbenac. Malay. Arch. 60. 1919. Callicarpa caudatifolia Max. ex Moldenke, Résumé Suppl. 3: 30, in syn. 1962 [not C. caudatifolia Koidz., 1925, nor Merr., 1962]. Callicarpa mollis Koord. ex Moldenke, Résumé Suppl. 14: 7, in syn. 1966 [not C. mollis Matsumura, 1922, nor Req., 1839, nor Shirasawa, 1949, nor Sieb. & Zucc., 1844, nor Willd., 1840].

Bibliography: Maxim., Bull. Acad. Imp. Sci. St. Pétersb. 31: 76. 1886; Maxim., Mém. Biol. 12: 506--507. 1886; Durand & Jacks., Ind. Kew. Suppl. 1: 73. 1901; Hayek in Fedde, Repert. Spec. Nov. 2: 88. 1906; Elm., Leaflet. Philip. Bot. 3: 862--863. 1910; Merr. & Merritt, Philip. Journ. Sci. Bot. 5: 380--381. (1910); E. D. Merr., Philip. Journ. Sci. Bot. 10: 71. 1915; H. J. Lam, Verbenac.

Malay. Arch. 47, 58--61, 65, & [361]. 1919; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 23. 1921; E. D. Merr., Enum. Philip. Flow. Pl. 3: 383. 1923; Moldenke, Alph. List Common Vern. Names 3, 14, 17, 20, & 28. 1939; Moldenke, Prelim. Alph. List Invalid Names 10. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 56, 61, & 86. 1942; Moldenke, Alph. List Invalid Names 8. 1942; Moldenke, Phytologia 2: 94. 1945; Moldenke, Alph. List Cit. 1: 224 (1946), 2: 404 & 463 (1948), 3: 765 (1949), and 4: 1259. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 130, 140, & 177. 1949; Moldenke, Phytologia 3: 464 (1951) and 4: 122--124. 1952; Moldenke, Résumé 168, 182, 194, 197, 198, 200, 242, & 443. 1959; Moldenke, Résumé Suppl. 3: 21 & 30 (1962), 12: 8 (1965), and 14: 4, 6, & 7. 1966; Moldenke, Phytologia 13: 431, 433, & 499 (1966) and 14: 121. 1966.

Slender large bush, shrub, or small tree, 2--10 m. tall, the young parts whitish-yellow floccose or tomentose; trunk 2--4 cm. in diameter; stems floccose-tomentose; leaves decussate-opposite; petioles short, 3--7 mm. long, whitish-yellow floccose-tomentose; leaf-blades membranous, narrowly lanceolate or linear-lanceolate, 8.5--16 cm. long, 1.8--4.5 cm. wide, gradually narrowed at both ends, gradually long-caudate-acuminate at the apex, minutely denticulate or sharply patulous-serrate along the margins, attenuate to the acute base, more or less densely hispid with simple hairs and viscid-punctate with many reddish-yellow glands above, more or less densely floccose-tomentose with stellate hairs and with many reddish-yellow glands and a few small scales beneath, the hairs more dense on the venation; secondaries 8 or 9 pairs, indistinct; inflorescence cymose, as long as the petioles; peduncles 0.5--1.5 cm. long, floccose-tomentose; cymes fasciculate, globose, 2--3.5 cm. long, 1.2--6 cm. wide, whitish-yellow floccose or tomentose; buds pink; calyx 0.75--1 mm. long, hispid with long simple hairs, glandular-dotted, with many glanduliferous hairs and some large scales, the rim obsolete 4-dentate; corolla 1.5--2 mm. long, about twice as long as the calyx, pink or lavender-pink to lavender, pale-purple, purple, or violet, glabrous or with some simple hairs and some glands, its tube broadly cylindrical, the lobes 1/3 the length of the tube; stamens slightly exserted or twice as long as the corolla; anthers subquadrate; style surpassing the stamens, slightly bilobed; ovary with 4 broad lines of glands; fruit small, green or pinkish-green when immature, becoming purple, bright-purple, or violet-blue to violet or dark-violet, glossy.

The type of this species was collected by Hugh Cuming (no. 1095) somewhere in the Philippine Islands and is deposited in the herbarium of the Jardin Botanique Principal at Leningrad. Maximowicz (1886) says of it: "Folia Callicarpa pilosissimae petiolo 5 mm., lamina 11: 2 cm. Pedunculus 15 mm., cyma diam. 20 mm. Pedicelli calycem aequantes v. superantes. Calyx 1 mm., corolla 2.5 mm. longa." Hayek (1906), in speaking of C. elegans Hayek, says "Foliorum forma Callicarpae caudatae Maxim. simillima, differt foliorum glabritie et serratura maiore nec non indumento ramorum diverso."

Lam (1919) divides the species into four varieties, but his var.

glabriuscula is a synonym of C. dolichophylla Merr. and his var. simplicipuberula is a synonym of C. merrillii Moldenke. He distinguishes his remaining two varieties as follows: "Var. α typica H. J. Lam, nov. var. — folia minora, 10 cm. longa, 1.8 cm. lata, petiolo 0.5 cm. longo; utrinque dense puberula, subtus stellato-tomentosa; cymi 1.2 cm. diam., pedunculo 0.5 cm. longo; calyx dense pilosus pilis simplicibus, pilis glanduliferis, squamis singulis. Distribution: Philippines (Max.).

"Var. β magna H. J. Lam, nov. var. — folia cum eis var. α conformia, sed dimensionibus differentia, 9 1/2 — 16 cm. longa, 2 1/2 — 4 1/2 cm. lata, petiolo 0.3—0.7 cm. longo; cymis usque ad 3 1/2 cm. longi, pedunculis 0.5—1.5 cm. longis." He bases this second variety on five cotype collections: Luzon: Curran, Merritt, & Zschokke 18127, Elmer 8646, and Herb. Philip. Forest. Bur. 1643 & 1644. Mindanao: Elmer 11333. He notes that what he calls C. reevesii Wall. (now known as C. nudiflora Hook. & Arn.) is related to C. caudata and to C. pilosissima. He also avers that C. pedunculata R. Br. is related to it, but never has its leaves with the acute or cuneate base seen in C. caudata.

The original publication by Maximowicz is dated "1887" by Durand & Jackson (1901) and by Lam (1919). It should also be noted here that the C. caudatifolia of Koidzumi, referred to in the synonymy above, is actually a synonym of C. japonica var. angustata Rehd., while that of Merrill is a synonym of C. formosana var. glabrescens Moldenke; the C. mollis of Matsamura is C. okinawensis Nakai, that of Shirasawa is C. shirasawana Mak., that of Siebold & Zuccarini is a valid species, and that of "Req." and of Willdenow is C. acuminata H.B.K.

Koorders 19498b was identified by various herbarium workers as C. cana L., C. macrophylla Vahl, C. cuspidata Roxb., and then as "C. mollis Koord., n. sp." The name, C. caudatifolia Max., is based on Loher s.n., collected on Caraballo Mountain, Luzon, Philippine Islands, in March, 1915, and is deposited in the herbarium of the University of California at Berkeley.

Bakhuizen van den Brink (1921) places C. caudata in the synonymy of what he calls C. cuspidata Roxb., along with such diverse taxa as C. rubella Lindl., C. acutidens Schau., C. sessilifolia Wall. [= C. rubella], C. tenuiflora Champ. [= C. rubella], C. micrantha Vidal, C. psilocalyx C. B. Clarke, C. pilosissima Maxim., C. longipes Dunn, C. lancifolia Merr. [= C. merrillii Moldenke], and Mamanira Rumph. [C. candicans (Burm. f.) Hochr.]. Callicarpa cuspidata Roxb. is regarded by me as a synonym of C. pedunculata R. Br.

Collectors have found C. caudata growing in open places, open forests, old clearings, forest second-growth, Castanopsis forests, open planted Casuarina forests, the secondary story of forest

clearings, and in rocky and mossy soil on ridges, on open stream-banks, pine and damp forested slopes, and small coral islands, and at stream margins, from 300 to 2000 m. altitude, flowering and fruiting in March, April, June, and August to January. The flowers are described as "pink" on Brass 5520 & 31788 and on Herb. Philip. Bur. Sci. 43310, "lavender-pink" on Clemens & Clemens 3264, "lavender" on Brass 31563, "purple" on Womersley 4323, "pale-purple" on Hoogland & Pullen 5328, and "violet" on Herb. Philip. Bur. Sci. 44895 and on Versteegh B.W.3056.

Vernacular names recorded for the plant are "anayop", "anigup", "arayop", "diapu", "gital", "harayhai", "kabatiti", "kumukwireh", "lumis via", "mama", "minari", "nimnam", "nimname", "sakoita", "saykohadza", and "suba". Clemens 7544 has a note "with Urt. & Astile rusts".

Material has been misidentified and distributed in herbaria under the names C. cana L., C. cuspidata Roxb., C. lancifolia Merr., C. longifolia Lam., C. macrophylla Vahl, C. merrillii Moldenke, C. pedunculata R. Br., C. pentandra var. paloensis (Elm.) Bakh., C. rubella Lindl., and C. stenophylla Merr. On the other hand, the De Vore & Hoover 41, distributed as C. caudata, is C. merrillii Moldenke.

In all, 94 herbarium specimens, including type material of most of the names involved, have been examined by me.

Citations: WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Bohol: M. Ramos s.n. [Herb. Philip. Bur. Sci. 43310] (Ca--242439). Luzon: P. T. Barnes s.n. [Herb. Philip. Forest. Bur. 924] (N); Canicosa 7 [Herb. Philip. Forest. Bur. 30020] (Ca--291747); Curran, Merritt, & Zschokke s.n. [Herb. Philip. Forest. Bur. 18127] (Bz--17507), s.n. [Herb. Philip. Forest. Bur. 18163] (Bi); Elmer 5784 (Bz--17525, N), 5870 (N), 8646 (Bz--17505, N, Vt); F. C. Gates 6455 (Ka--64623); Loher s.n. [Caraballo Mountain, Mar. 1915] (Ca--229198); McClure 15899 (Ca--307573); E. D. Merrill 1727 (Bz--17506), 4613 (N), 11689 (Bz--17509); M. Ramos s.n. [Herb. Philip. Bur. Sci. 7724] (N); Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 37481] (Bz--17510), s.n. [Herb. Philip. Bur. Sci. 38035] (Bz--17511), s.n. [Herb. Philip. Bur. Sci. 40505] (Bz--17508), s.n. [Herb. Philip. Bur. Sci. 44895] (Ca--257612, N), s.n. [Herb. Philip. Bur. Sci. 48634] (Ca--322065, N); R. S. Williams 1060 (N, N), 1158 (N, N). Mindanao: M. K. Clemens s.n. [Herb. Philip. Bur. Sci. 15676] (Ca--268581, N); Elmer 11333 (Bi, Bz--17517, N, Vt); Mearns & Hutchinson s.n. [Herb. Philip. Forest. Bur. 4755] (Bz--17518, N, W--706252); Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 38850] (Bz--17512), s.n. [Herb. Philip. Bur. Sci. 49295] (B, Bz--17520, Ca--324454, N); Ramos & Pascasio s.n. [Herb. Philip. Bur. Sci. 34775] (N); R. S. Williams 2307 (N, N). Santa Cruz: S. Olsen 1062 (Cp). Ticao: W. W. Clark s.n. [Herb. Philip. Forest.

Bur. 2534] (Bz--17523, N). Island undetermined: Herb. Philip.
Bur. Sci. s.n. (Gg--31994); Née 24 (Q). INDONESIA: GREATER SUNDA
 ISLANDS: Celebes: T. Kaudern 424 (N); W. Kaudern 313 (N); Koorders
19485b (Bz--17535, Bz--17536), 19498b [448] (Bz--17537, Bz--17538).
 LESSER SUNDA ISLANDS: Timor: Teijsmann 8942 (Bz--17497); Walsh
467 (Bz--17496). MOLUCCA ISLANDS: Amboina: C. B. Robinson 299
 (Bz--17498, N). Halmahera: Anang 569 (Bz--72984), 638 (Bz--72899).
 Morotai: Anang 179a (Bz--72982), 235 (Bz--72981); Main & Aden 947
 (Bz--72705). Sanana: Bloembergen 4431 (Bz--17499). Ternate: Beg-
uin 1214 (Bz--17502). MELANESIA: NEW GUINEA: Dutch New Guinea:
D. Bergman 443 (S); Docters van Leeuwen 10106 (Bz--72659); Kane-
hira & Hatusima 13539 (Bz--17504); Mayr 104 (Bz--72635); Versteegh
B.W.3056 (Ng--20223). Northeastern New Guinea: Brass 31087 (W--
 2391917), 31563 (N, W--2392210), 31788 (W--2392341); M. K. Clemens
7544 (B), 7852b (B), 11028 bis (Mi); Clemens & Clemens 3264 (Br);
Draper s.n. (Ng--16957); Hoogland & Pullen 5328 (Bi, Ng--16911, Ng,
 W--2314880); N. G. F. 3065 (Ng--20222); Womersley 4323 (Ng--6491).
 Papua: Brass 5520 (N); C. E. Carr 13163 (N); Giulianetti s.n. (Mb).
 BISMARCK ARCHIPELAGO: Mussau: Køie & Olsen 1363 (Cp, Z). New
 Britain: Waterhouse 373 [Herb. Yale School Forest. 29498] (N).

CALLICARPA CAULIFLORA Merr., Philip. Journ. Sci. Bot. 7: 338--339.
 1912.

Synonymy: *Callicarpa pentandra* f. *hexandra* subf. *cauliflora*
 (Merr.) Bakh. ex Moldenke, Résumé 246, in syn. 1959.

Bibliography: E. D. Merr., Philip. Journ. Sci. Bot. 7: 338--
 339. 1912; H. J. Lam, Verbenac. Malay. Arch. 50, 83, & [361].
 1919; Prain, Ind. Kew. Suppl. 5: 43. 1921; Bakh., Bull. Jard.
 Bot. Buitenz., ser. 3, 3: 13. 1921; E. D. Merr., Journ. Malay.
 Br. Roy. Asiat. Soc. 1: 32. 1923; E. D. Merr., Enum. Philip.
 Flow. Pl. 3: 383. 1923; Moldenke, Known Geogr. Distrib. Verbenac.,
 ed. 1, 62 & 86 (1942) and ed. 2, 140 & 177. 1949; Moldenke, Résumé
 182, 246, & 443. 1959.

Shrub or small tree; branchlets tetragonal, rather stout,
 brownish-floccose and glandular or rather densely covered with
 brownish plumose-stellate hairs and also yellow-glandular; leaves
 decussate-opposite; petioles stout, 1--2 cm. long, densely stel-
 late-pubescent; leaf-blades chartaceous, oblong-elliptic, 30--35
 cm. long, 9--13 cm. wide, slenderly and sharply acuminate at the
 apex, distantly and irregularly denticulate along the margins or
 entire, gradually narrowed or attenuate to the base, glabrous a-
 bove, somewhat paler, yellow-glandular, and sparingly stellate-
 pilose on the midrib, secondaries, and veinlet reticulation be-
 neath, denser on the midrib, the hairs often plumose; secondaries
 about 14 pairs, prominent beneath, anastomosing; veinlet reticu-
 lation prominent, rather lax; inflorescence borne on the trunk,
 fasciculate, the cymes sessile, cauliflorous, hemispheric, crowd-
 ed, rather dense, 2--3 cm. wide, slightly hirsute or brownish-

floccose, glandular; pedicels 3—5 mm. long; bractlets linear-lanceolate, 1--2 mm. long; calyx oblong-ovoid, about 3 mm. long, 1.8 mm. wide, its rim equally 4-toothed, the teeth narrowly ovate, 0.5 mm. long, acute at the apex; corolla dark-red, about 7 mm. long, cylindric, slightly glandular and pubescent on the outside, the limb 4-lobed; anthers oblong, 3 mm. long, glandular on the back; fruit globose, the lower half enclosed by the fruiting-calyx, about 4 mm. wide, with 4 pyrenes.

The type of this species was collected by Harry Nichols Whitford and Wallace Irving Hutchinson [Philippine Forest Bureau 9321] in canyons in forests, at an altitude of 20 meters, at Portobanga, in the district of Zamboanga, Mindanao, Philippine Islands, on January 13, 1908, and was deposited in the herbarium of the Philippine Bureau of Science at Manila, but is now destroyed. Merrill (1912) says "A species well characterized by its cauline, fascicled inflorescence, in this character differing from all the other species of the genus known to me. Allied to C. ramiflora Merr., but with a quite different indumentum." Lam also affirms that its affinity is with C. ramiflora. Bakhuizen van den Brink (1921) reduces it to synonymy under what he calls C. pentandra var. typica f. hexandra (Teijsm. & Binn.) Bakh., which I regard as the very different Geunsia hexandra (Teijsm. & Binn.) Koord.

In all, 3 herbarium specimens have been examined by me.

Citations: WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Leyte: M. Ramos s.n. [Herb. Philip. Bur. Sci. 41540] (Bz--18224, Bz--18225, 2).

CALLICARPA CHENAULTI Fairchild, Expl. Plants 51, nom. nud. 1930.

Bibliography: D. Fairchild, Expl. Plants 50--51. 1930; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 71 & 86. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 53. 1948; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 156 & 177. 1949; Moldenke, Résumé 213 & 443. 1959.

Nothing is known to me about this plant except what is stated by Fairchild (1930). His reference, in full, is as follows: "There were three individual horticulturists in France for whom I had conceived a very unusual regard through seeing the results of their breeding work. They were M. Leon Chenault, who had been for many years one of the foremost nurserymen of France, and whose gardens had been the first testing-out place for hundreds of new species and varieties of plants, especially from the Orient; M. Lemoine, the great breeder of lilacs, deutzias and other ornamental shrubs; and Pernet Ducher, than whom there has never been a greater breeder of roses. I was able to see M. Chenault and M. Ducher, but not, unfortunately, M. Lemoine. I spent a delightful day with Chenault and his son at Orléans, where Chenault père has, in his five-acre yard in the suburbs of the city, a most unusual lot of rare Chinese shrubs gathered together since his retirement to a new home in Orléans fourteen years ago. It seemed hardly credible that in this climate, in so short a time, one could so

transform a place and almost entirely with comparatively newly introduced things, but when one has been a nurseryman and dealt with a great variety of plants for fifty years one knows just what to plant. I venture to think that there were more rare species of plants in these few acres than are to be found in many a so-called 'Botanic Garden'. At the risk of being pedantic and for the purpose of proving my point, let me enumerate those I saw in the brief period of my stay there. I only noted those which attracted my fancy. Rosa sericea petrolutea, Himalayan rose. Dipelta floribunda from Central China, a shrub with pale rose, orange-throated flowers. Rhus cotinus atropurpureus (Rehder's Cotinus coggygia, Scop.), a charming form of the smoke tree. Ribes speciosum var. fuchsioides, an evergreen shrub with flowers like fuchsias which, in its simpler form, is wild in California. Rubus deliciosa, a handsome, large, white-flowered raspberry from Colorado. Phygelius capensis, a handsome Scrophulariaceae from the Cape, known as the Cape Figwort. Eleagnus reflexa, a variety, according to Rehder, of E. pungens from Japan. Calli-carpa chenaulti, a species which I find described nowhere in my books."

CALLICARPA CLEMENSORUM Moldenke, Phytologia 5: 7-8. 1954.

Bibliography: Moldenke, Phytologia 5: 7-8 & 29. 1954; Moldenke, Biol. Abstr. 29: 2935. 1955; Moldenke, Résumé 192 & 443. 1959.

Shrub or tree; branchlets very coarse, stout, medullose, conspicuously tetragonal, flattened toward the apex, floccose-tomentose on the younger parts, glabrescent in age, with scattered short aculeations which wear off on the older wood; nodes conspicuously annulate; principal internodes 4.5--7 cm. long; leaves decussate-opposite; petioles very stout and heavy, 3.5--6 cm. long, densely floccose-tomentose with grayish hair like the branchlets; leaf-blades subcoriaceous, grayish-green on both surfaces, broadly elliptic, 14--19.5 cm. long, 8--10 cm. wide, short-acuminate at the apex, rounded at the base, regularly serrate from just above the base to the apical acumination, rather densely furfuraceous above when young, but this tomentum soon wearing off irregularly and the mature leaves glabrous above except for the midrib, densely furfuraceous-tomentose beneath with grayish hair; midrib rather stout, slightly prominent or flat and persistently furfuraceous above, very conspicuously rounded-prominent beneath; secondaries slender, 9--11 per side, arcuate-ascending, flat above, prominent beneath, inconspicuously anastomosing at the margins; veinlet reticulation very abundant, mostly obscure above, prominulous beneath; inflorescence axillary, cymose; cymes 2 per node, about as long as the subtending petioles, about twice bifurcate, very loose and open, the ultimate furcations terminated by a very dense head-like cluster of 15--20 subsessile flowers; peduncles rather stout, about 3 cm. long, densely floccose-tomentose; inflorescence-branches elongate, 1--2.5 cm. long, densely floccose-tomentose with grayish hairs like the peduncles; bracts

very conspicuous, a pair beneath each furcation of the cyme and numerous among the flowers, 4--15 mm. long, linear-subulate, densely floccose-tomentose; calyx campanulate, 2--2.5 mm. long, very densely grayish-tomentose, its rim 4-toothed; corolla scarcely surpassing the calyx, glabrous; stamens 4, long-exserted; filaments about 5 mm. long, glabrous; pistil one, long-exserted, about equaling the stamens or somewhat surpassing them; style 6--7 mm. long, glabrous; stigma peltate-capitate.

The type of this distinctive species was collected by Joseph and Mary Knapp Clemens (no. 34036) in the Penataran River basin, British North Borneo, on July 22, 1933, and is deposited in the Herbarium Bogoriense at Buitenzorg, Java. The taxon is known to me only from the original collection, of which I have examined 4 specimens, including the type.

Citations: INDONESIA: GREATER SUNDA ISLANDS: British North Borneo: Clemens & Clemens 34036 (Bz--18332--isotype, Bz--18333--isotype, Bz--18334--type, Z--isotype).

CALLICARPA COLLINA Diels, Notizbl. Bot. Gart. Berlin 9: 1030. 1926.

Synonymy: Callicarpa brevipes f. yingtakensis P'ei, Mem. Sci. Soc. China 1 (3): [Verbenac. China] 47. 1932.

Bibliography: Diels, Notizbl. Bot. Gart. Berlin 9: 1030. 1926; P'ei, Mem. Sci. Soc. China 1 (3): [Verbenac. China] 16 & 47--49, pl. 5. 1932; A. W. Hill, Ind. Kew. Suppl. 8: 37. 1933; Worsdell, Ind. Lond. Suppl. 1: 160. 1941; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 56 & 86 (1942) and ed. 2, 130 & 177. 1949; Moldenke, Alph. List Cit. 4: 1011. 1949; Moldenke, Résumé 168 & 443. 1959; Moldenke, Résumé Suppl. 14: 6. 1966; Moldenke, Phytologia 14: 102. 1966.

Illustrations: P'ei, Mem. Sci. Soc. China 1 (3): [Verbenac. China] pl. 5. 1932.

Small woody shrub, 1--1.6 m. tall, with a spread of 1 m.; stems fulvo-tomentellous, finally glabrescent; branchlets pubescent; leaves decussate-opposite, sessile or subsessile to short-petiolate; petioles, if present, not surpassing 7 mm. in length; leaf-blades herbaceous or chartaceous, ovate-lanceolate or oblanceolate, 8.5--25 cm. long, 3.3--8 cm. wide, the larger leaves always at the upper parts of the branchlets, the upper ones acuminate or long-acuminate at the apex, the lower ones obtuse or rounded, all crenately serrate, minutely callose-serrulate, or entire along the margins, narrowed to the subcordate or rounded base, almost glabrous above, scattered stellate-pilose beneath or merely densely pubescent along the venation beneath; secondaries 8--12 per side; peduncles about 4 mm. long, densely pubescent; flowers small; calyx 0.6 mm. long; corolla white or pinkish-white, glabrous, its tube about 1.8 mm. long, the lobes 1 mm. long; anthers exserted, opening by means of an apical pore; immature fruit light-green, about 3.5 mm. wide, glandular.

The type of this species was collected by Hsen-Hsu Hu (no. 1250) on shady hillsides at Tzuchi-hsien, at 600 meters altitude,

Kiangsi, China, on July 12, 1921, and was deposited in the herbarium of the Botanischer Garten in Berlin, but is now destroyed. Diels (1926) says: "*C. rubella* Lindl. affinis ramis robustioribus, foliis majoribus fere integris, basi ipsa vix cordatis, inflorescentia densius conferta, corolla glabra, filamentis brevioribus distinguitur". P'ei (1932) cites an isotype in the Arnold Arboretum herbarium and also Hu 1125 from Kiangsi.

The plant has been found growing on shady hillsides, in shady places in valleys, in dry places along roadsides, near streams, and on dry level land, at altitudes of 600 to 930 meters, flowering from May to July. The flowers are described as "white" on Hu 1125 & 1250, Lau 20221, and Tsang 20416, and as "pinkish-white" on Tsang 20606.

P'ei (1932), in his description, says that the leaves are "5--8 mm. longe", but this is surely an error for "lata"; he notes that Hu 1125 has larger leaves than the type collection, "but the other characters are identical". He says that "The species is related to *Callicarpa lingii* Merr. from which it differs by its narrower leaves which are pubescent beneath and cuneate at the base." In speaking of *C. lingii*, he says "It is related to *Callicarpa collina* Diels from which it differs by its sessile and cordate leaves which are nearly glabrous, while the leaves of *C. collina* Diels are pubescent beneath at least along the nerves, cuneate at base and narrow lanceolate." His *C. brevipes* f. *yingtakenensis* is said to differ from the typical form of *C. brevipes* and the other named forms of that species in having sessile or subsessile leaves, the blades ovate-lanceolate, acuminate at the apex, subcordate to rounded at the base, and crenate-serrate or entire along the margins. The type was collected by Y. K. Wang (no. 2902) in woods at Yingtak, Kwangtung, China, in July, 1929, and is deposited in the Britton Herbarium at the New York Botanical Garden.

In all, 7 herbarium specimens and one mounted photograph, including type or phototype material of all the names involved, have been examined by me.

Citations: CHINA: Kiangsi: Hu 1250 (N--photo of isotype). Kwangtung: S. Y. Lau 20221 (N), 20274 (N); W. T. Tsang 20416 (Ba, N, W--1753643), 20606 (N); Y. K. Wang 2902 (N).

CALLICARPA CRASSINERVIS Urb., Symb. Antil. 7: 357. 1911.

Additional & emended synonymy: *Callicarpa fulva* Griseb. ex Urb., Symb. Antil. 7: 357, in syn (in part). 1911 [not *C. fulva* A. Rich., 1850, nor A. Rich. apud Millsp., 1936]. *Callicarpa rugaefolia* C. Wright ex Moldenke in Fedde, Repert. Spec. Nov. 40: 65 & 66, in syn. 1936. *Callicarpa crassifolia* Moldenke, Brief Course Syst. Bot. Lect. 9: 2, sphalm. 1937.

Bibliography: A. Rich. in Sagra, Hist. Cuba 2 (11): 145. 1850; Griseb., Pl. Wright. 2: 529. 1862; Prain, Ind. Kew. Suppl. 5: 43. 1921; Moldenke in Fedde, Repert. Spec. Nov. 39: 300 (1936) and 40: 57--59, 65--67, 119, 126, & 131. 1936; Moldenke, Brief Course Syst.

Bot. Lect. 9: 2. 1937; Moldenke, Geogr. Distrib. Avicenn. 4. 1939; Moldenke, Brief Course, Syst. Bot., ed. 2, 48. 1939; Moldenke, Prelim. Alph. List Invalid Names 10 & 13. 1940; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 24 & 86. 1942; Moldenke, Alph. List Invalid Names 9 & 11. 1942; Moldenke, Alph. List Cit. 1: 273 & 306. 1946; Moldenke, Brief Course Elem. Syst. Bot. 53. 1947; Moldenke, Alph. List Cit. 2: 420 (1948), 3: 664 (1949), and 4: 1143. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 42 & 177. 1949; Alain in León & Alain, Fl. Cuba 4: 305 & 309. 1957; Moldenke, Résumé 50, 243, 247, & 443. 1959; Moldenke, Phytologia 7: 27. 1959; Moldenke, Résumé Suppl. 13: 6. 1966; J. A. Clark, Card Ind. Gen. Sp. Pl. n.d.

It should be noted here that C. fulva Griseb. is in part C. crassinervis Urb. and in part C. grisebachii Urb.; A. fulva A. Rich. is a valid species, but C. fulva "A. Rich. apud Millsp." is C. hitchcockii Millsp.

In all, 31 herbarium specimens, including type material of all the names involved, and 22 mounted photographs and other illustrations have been examined by me.

Additional & emended citations: CUBA: Oriente: Acuña, Alonso, & Pina 18800 (Es); Clemente 6617 (Z); Linden 2006 (B—photo, Br, P, P, S—photo), 2061, in part (Br); C. Wright 1357, in part [Jan.—Jul. 1859] (Br—isotype, D—612064—isotype, E—119140—isotype, E—photo of type, F—183674—isotype, I—photo of isotype, Mi—photo of isotype, S—photo of type, W—photo of type).

CALLICARPA CUBENSIS Urb., Symb. Antil. 5: 485—486. 1908.

Additional & emended synonymy: Aegiphila incana Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 218. 1863 [not Callicarpa incana Roxb., 1814]. Callicarpa reticulata A. Rich. apud Urb., Symb. Antil. 5: 485, in syn. 1908 [not C. reticulata Poepp., 1845, nor Sw., 1788]. Callicarpa incana (Turcz.) Moldenke, Torreya 34: 8. 1934. Callicarpa rugosa Sessé & Moc. ex Moldenke, Prelim. Alph. List Invalid Names 13, in syn. 1940. Callicarpa incana (F.) Moldenke ex Roig y Mesa, Dicc. Bot. 274, sphalm. 1953. Callicarpa cubensis var. cubensis Alain in León & Alain, Fl. Cuba 4: 305. 1957.

Bibliography: Sw., Prodr. 31. 1788; Schau. in A. DC., Prodr. 11: 642. 1847; A. Rich. in Sagra, Hist. Cuba 2 (11): 144. 1850; Griseb., Fl. Brit. West Ind. 499. 1861; Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 218. 1863; Sauv., Fl. Cub. 113, no. 1775. 1868; Jacks. in Hook. f. & Jacks., Ind. Kew. 1: 46. 1893; Urb., Symb. Antil. 5: 485—486 (1908) and 7: 356. 1911; Prain, Ind. Kew. Suppl. 4: 34. 1913; Urb., Arkiv Bot. Stockh. 22a (17): 108. 1929; Moldenke, Torreya 34: 8. 1934; Moldenke in Fedde, Repert. Spec. Nov. 39: 300 (1936), 40: 50, 53, 69—71, 82, 83, 104, 117, & 119—131 (1936), and 42: 242. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 45. 1938; Moldenke, Alph. List Common Vern. Names 12. 1939; Moldenke, Geogr. Distrib. Avicenn. 4, 6, & 35. 1939; Mol-

denke, Prelim. Alph. List Invalid Names 2 & 11--13. 1940; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 24, 25, 71, & 86. 1942; Moldenke, Alph. List Invalid Names 2 & 9--11. 1942; Moldenke, Phytologia 2: 94. 1945; Moldenke, Alph. List Cit. 1: 4, 15, 24, 63, 65, 66, 112, 136, 184, 186, 187, 208, 246, 273, 286, 307, 310, & 312 (1946), 2: 339, 347, 420, 458, 470, 487, 490, 499, 525, 631, 645, 646, 648, & 651 (1948), 3: 757, 774, 801, 823, 868, 880, 889, 924, & 925 (1949), and 4: 1027, 1033, 1035, 1085, 1143--1145, 1207, & 1303. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 42, 45, 46, 157, & 177. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 3. 1950; Moldenke, Phytologia 3: 484, 487, & 488. 1951; Moldenke, Inform. Mold. Set 46 Spec. 2. 1951; Moldenke, Biol. Abstr. 26: 643. 1952; Roig y Mesa, Dicc. Bot. 274. 1953; Moldenke, Phytologia 4: 450. 1953; Alain in León & Alain, Fl. Cuba 4: 304 & 305. 1957; Moldenke, Résumé 50, 53, 54, 213, 229, 240, 242, 243, 246, 247, & 443. 1959; Moldenke, Phytologia 7: 27. 1959; J. A. Clark, Card Ind. Gen. Sp. Pl. n.d.

Urban (1908) apparently based this species on five collections, all made in Cuba: Sagra s.n. [=210] from Havana, Charles Wright 3172 from Boca de Camarioca, Havana, C. F. Baker 5176 and Van Hermann 5078 from Havana, and Rugel 352 from Cajimar, Havana, all deposited in the herbarium of the Botanisches Museum in Berlin, but now destroyed. Of these, Sagra 210 has been chosen as the lectotype. The various Sagra specimens without a number, in various herbaria, and cited by myself in my 1936 work and by other authors, appear to be a part of Sagra 210. The type of C. rugosa is Sessé, Mociffo, Castillo, & Maldonado 516, from somewhere in Cuba, deposited in the Madrid herbarium.

Urban (1908) observes that "Planta jamaicensis, C. reticulata Sw., temporibus recentioribus non collecta et in museo Holmiensi ex cl. Lindman in lit. deficiens e descriptione foliis elliptico-lanceolatis, calyce breviter 4-fido, stylo bifido, baccis extus sericeis sine dubio diversa est". In speaking of his C. selleana (1929) he says "Affinis Callicarpa cubensis Urb., quae foliis basi rotundatis margine integris, inflorescentiis amplioribus distat". In speaking of his C. sordida (1911) he notes "Longius distant Callicarpa cubensis Urb."

In my 1936 work I adopted the name, C. incana (Turcz.) Moldenke, for this taxon, but this binomial proves to be a later homonym of the C. incana of Roxburgh [= C. macrophylla Vahl]. Most of the specimens annotated by me at that time were returned to various herbaria with the incorrect annotation.

Recent collectors describe C. cubensis as a shrub, to 1.8 m. tall, the flowers pink, light pink-violet, lilac, or purple, and the fruit pink. It has been found growing in thickets, thickets near brooks, and palm barrens, as well as at river edges, fruiting in May. Webster describes it as a common shrub on limestone cliffs. The corollas are described as "lilac" on Ekman 12875 & 16840, "light pink-violet" on Ekman 17316, "pink" on Webster 3709,

and "purple" on C. Wright 3172.

It should be noted here that the C. reticulata Sw., referred to in the synonymy above, is a valid species, while C. reticulata Poepp. is a synonym of Petitia domingensis Jacq.

Turczaninow's original description of Aegiphila incana (1863) is: "Ae. ramis, petiolis et panicula pulverulento-incanis; foliis ellipticis, ovatis obovatisve utrinque obtusis, rarius apice acutiusculis, margine revolutis integerrimis, crebre reticulatis, supra pulverulentis punctatisque, subtus ob rete elevatum rugosissimis, flavido-albicantibus; cymis terminalibus folia subaequantibus; calycibus turbinatis corollae tubo latioribus atque sublongioribus; genitalibus exsertis. Folia in genere parva, pollice breviora. Cuba, Ramon de la Sagra."

Roig y Mesa (1953) records the vernacular name "cerato" and notes "Arbusto propio de sabanas de serpentina.....Es una especie de Filigrana, común en Guabasiabo, Holguín". The names "filigrana" and "filigrana de mazorquilla" are also recorded for it.

Material has been misidentified and distributed in herbaria as C. reticulata Sw. and as C. tomentosa (L.) Murr.

The late W. H. Camp in 1935 examined a series of specimens of C. cubensis at my request and presented the following report: "I find some variation in the teeth of the calyx-rim in the material examined. This information is supplied herewith by means of diagrams at approximately x10 diam. magnification, with the following observations.

"The material fell roughly into two groups based on the depth of the sinus between the lobes and the acuteness of the lobe itself. There was also some correlation between this character and one other -- namely the pubescence of the inflorescence axis and stem. No other correlations -- e.g., leaf-shape, size, pubescence, color, bracts, pedicels, flowers -- could definitely be established owing to the lack of sufficient material in exactly comparable stages. The pubescence of the leaves seemed to be fairly well correlated with that of the inflorescence axis.

"The following is a list of the specimens examined: (1) With low and fairly blunt calyx-teeth, the inflorescence with short pubescence: Britton, Britton, & Shafer 126, Britton & Earle 7607, Britton, Earle, & Wilson 404, León 971, Rugel 352, Sagra s.n. (2) With prominent and somewhat sharper calyx-teeth, the inflorescence axis with an obviously subpilose pubescence: Britton & Wilson 5654, Curbelo 6194, León, Edmund, & Fortún 8566. (3) Two intermediates were also noted with the deeper sinuses of the second group, but with the blunt teeth and short pubescence of the first group: Baker 5176, Van Hermann 5078.

"The writer -- even without the Van Hermann and Baker numbers -- would hesitate before admitting two species, or even two well-defined varieties. It is quite possible that earlier workers thought that the calyx was 'truncate', because it often has a peculiar way of drying with the points inflexed (as in the Sagra

collection). Since the sinuses are heavily covered with hairs and the points less so, the hairs tend to 'level off' the calyx-rim to the casual observer. In the drawings I have tried to ignore the pubescence of the calyx."



Casual observation



Optical section



Britton, Britton, & Shafer 126



full flower



Britton, Earle, & Wilson 6242



just prior to anthesis



young fruit

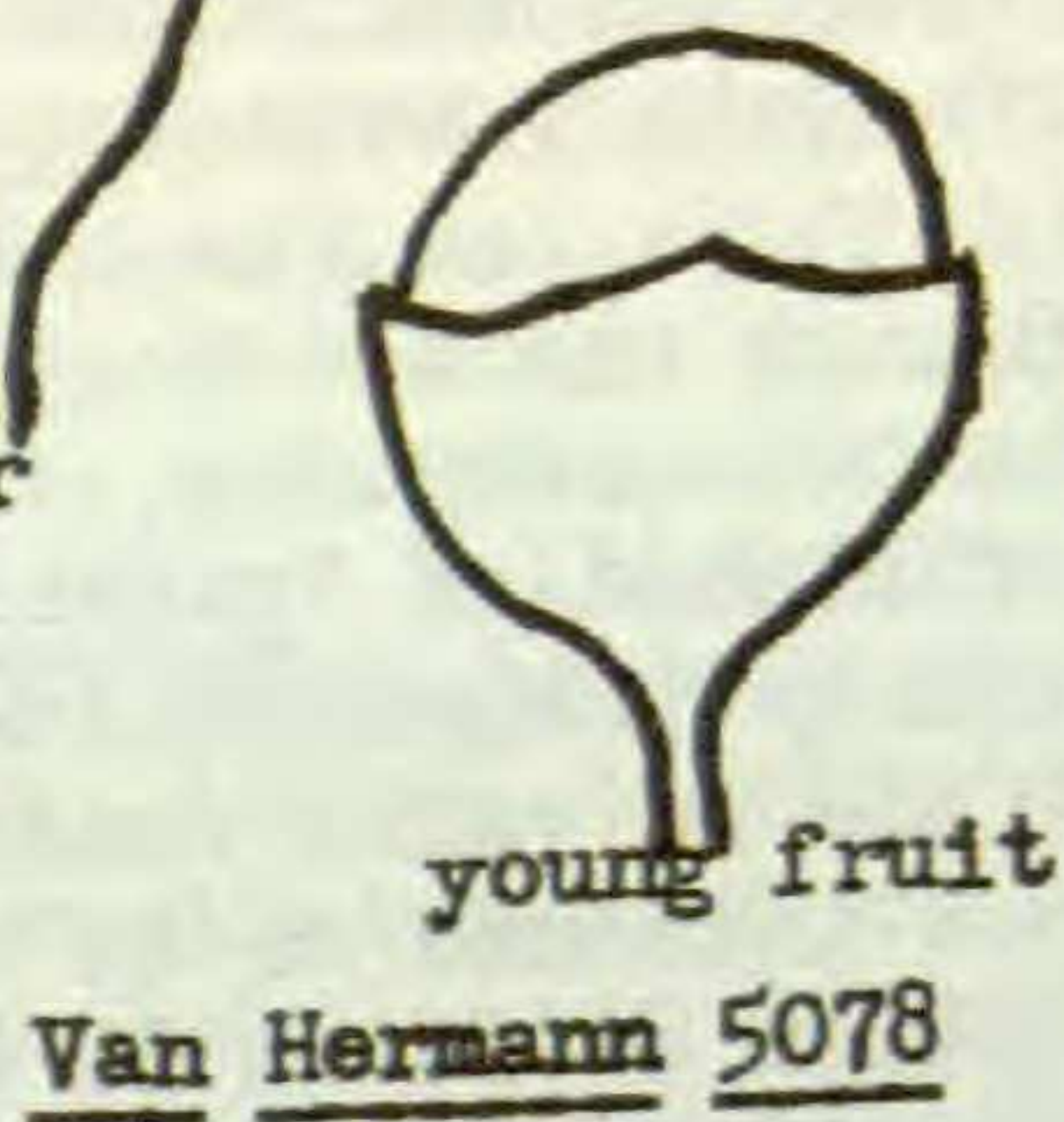
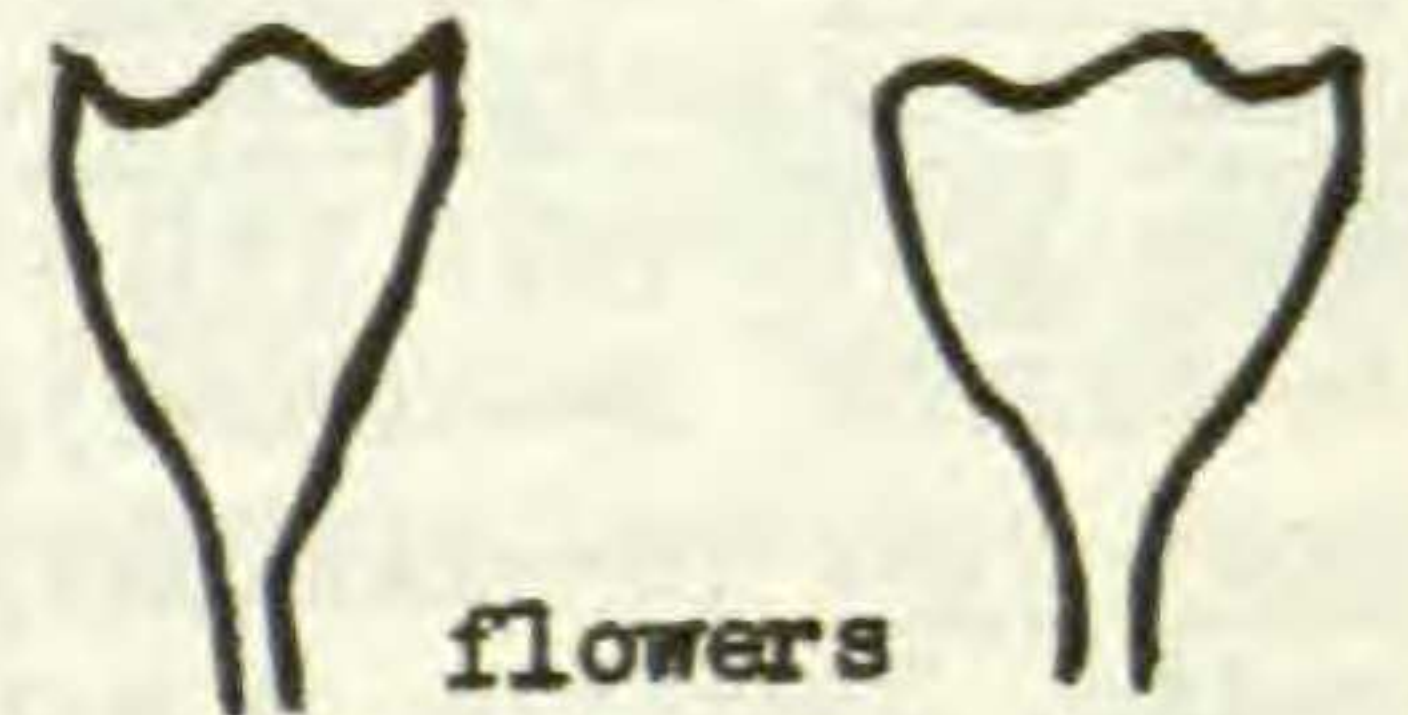
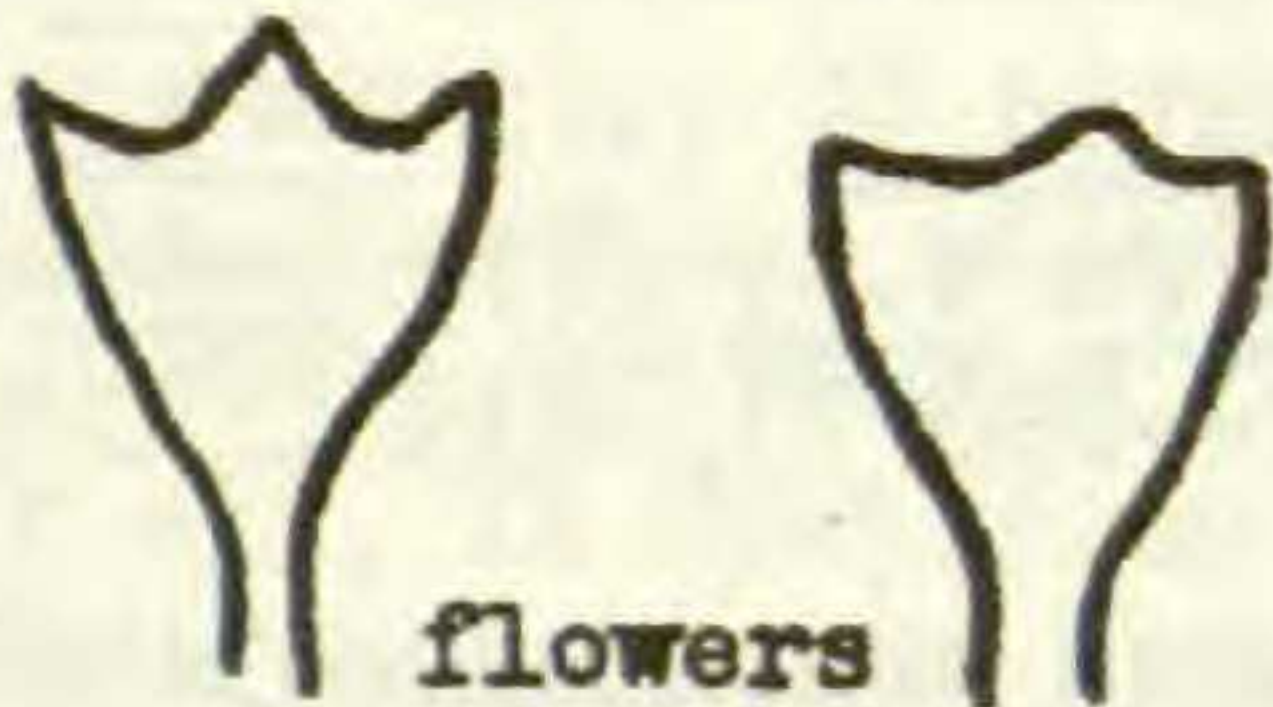
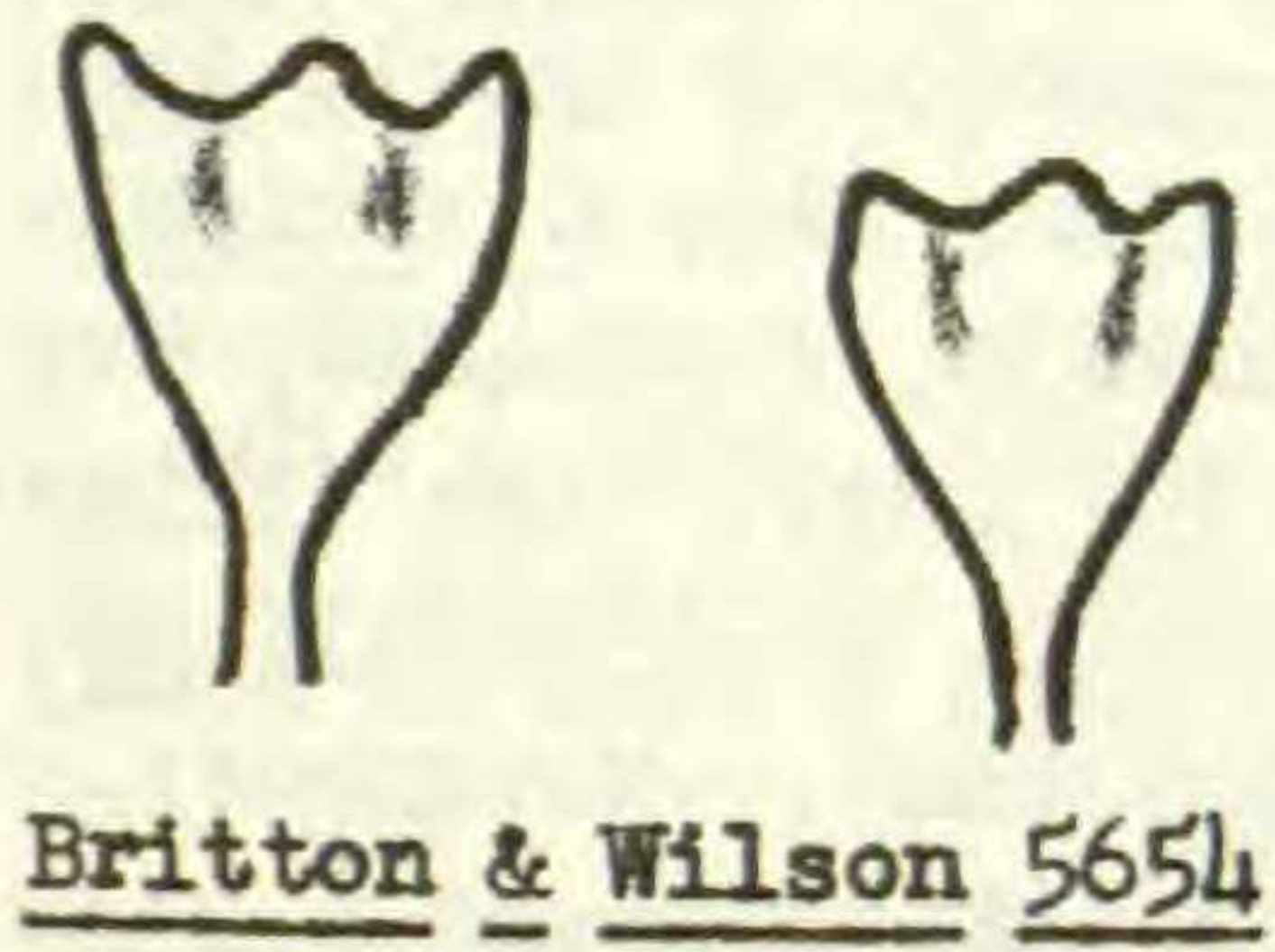
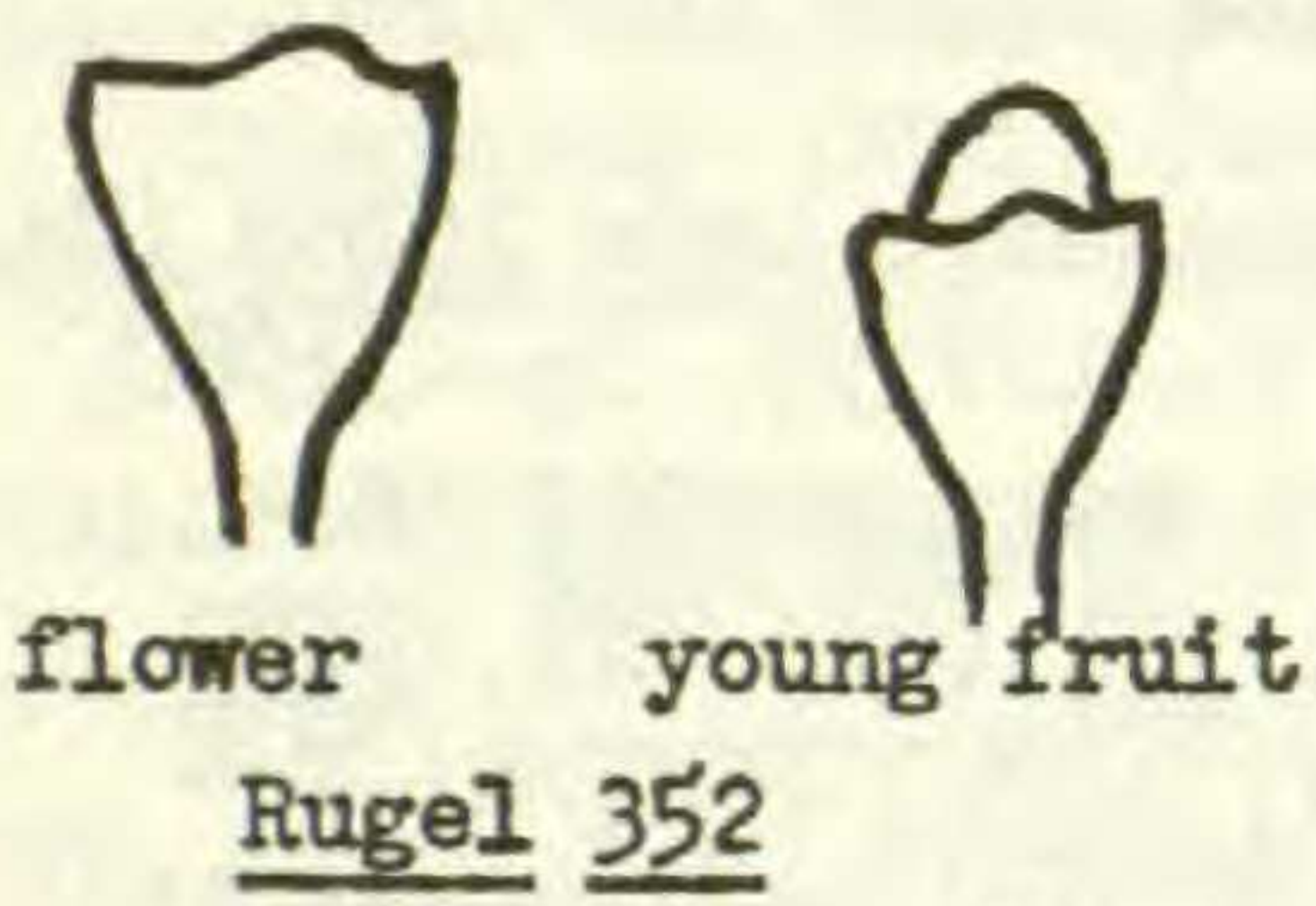


Britton & Earle 7607



León 971

Britton & Wilson 404



In all, 134 herbarium specimens and 40 mounted photographs, including type or phototype material of all the names involved, have been examined by me.

Additional & emended citations: CUBA: Camagney: León 16263 (Ha, N). Havana: C. F. Baker 5126 (Ca—140132, F—187195, Gg—31980, Oa, Po—64812, W—429474); Britton, Earle, & Wilson 6242 (F—284179); Guio 13 (Q); León 250 (Se—28355), 971 (Ha, Vi), 5689 (Ha, N), 6238 (Ha, N, Vi), 7218 (Ha, Ha, N), 13757 (Ha, N, Y—16324); Moldenke & Moldenke 19866 (Es, Lg, N, Ot, Sm); Sagra 12 (Dc, Dc, Dc), 210 (E—photo of type, F—976786—istotype, Mi—photo of istotype, S—photo of type, V—istotype, W—photo of type); Van Hermann 5078 (Po—64814); G. L. Webster 3709 (Mi, Mi); C. Wright 3172 [1860—1864; Herb. Sauvalle 1775] (E—119135, F—244618, Hv, I—photo, Pa), 3172 [1865; Herb. Sauvalle 1775] (Hv). Las Villas: Alain 4003 (Z); Britton & Wilson 5654 (Mi—photo, W—658694); Ekman 16840 (Mi, N); León, Edmund, & Fortún 8566 (Ha). Matanzas: Britton, Britton, & Shafer 126 (Cm). Pinar del Río: Acuña & Alain 15837 (Es), 18545 (Es); Acuña & Roig 10872 (Es); Alain & Acuña A.1209 (N); Britton & Earle 7607 (F—285759, W—696819); Ekman 12875 (N), 17316 (Mi, N). Province undetermined: Auber 4 (D—612061, D—612062); Collector undesignated 15 (Q); Herb. Short s.n. (E—119134); Sagra 514 (Dc); Serre s.n. (P); Sessé, Mociffo, Castillo, & Maldonado 516 [296] (F—850973, Q).

CALLICARPA CUBENSIS var. *PARVIFLORA* Moldenke, *Phytologia* 3: 487—488. 1951.

Synonymy: *Callicarpa cubensis* var. *parvifolia* Moldenke, *Phytologia* 3: 484, nom. nud. 1951.

Bibliography: Moldenke, *Phytologia* 3: 484 & 487—488. 1951; Moldenke, *Inform. Mold. Set 46 Spec. 2*. 1951; Moldenke, *Biol. Abstr.* 26: 643 & 3446. 1952; Moldenke, *Phytologia* 4: 450. 1953; Alain in León & Alain, *Fl. Cuba* 4: 305. 1957; Moldenke, *Résumé* 50, 242, 418, & 443. 1959.

This variety differs from the typical form of the species in having its leaf-blades much smaller and narrower, 1.2—2.7 cm. long and 5—10 mm. wide when mature.

The type of the variety was collected by Julián Baldomero Acuña Galé and Juan Tomás Roig y Mesa (no. 16765) at La Cajabana, La Palma, Pinar del Río, Cuba, on March 8, 1951, and is deposited in the Britton Herbarium at the New York Botanical Garden. Through an unfortunate error in transcription, the varietal name was officially and validly published as "*parviflora*". There are, however, hundreds of similarly inappropriate epithets in use today for other plants and I see no valid reason for proposing a change. After all, a name is now intended as an identifying label for a taxon, not as a description of it as it was in earlier times!

Material of this variety has been misidentified and distributed in herbaria as *C. shaferi* Britton & P. Wils. In all, 3 her-

barium specimens, including type material of both names involved, have been examined by me.

Citations: CUBA: Pinar del Río: Acuña & Roig 16765 (Es--isotype, Lm--isotype, N--type).

CALLICARPA CUNEIFOLIA Britton & P. Wils., Mem. Torrey Bot. Club 16: 97. 1920.

Bibliography: Britton & P. Wils., Mem. Torrey Bot. Club 16: 97. 1920; Urb. in Fedde, Repert. Spec. Nov. 18: 120. 1922; A. W. Hill, Ind. Kew. Suppl. 6: 34 (1926) and 7: 35. 1929; Moldenke in Fedde, Repert. Spec. Nov. 39: 299 (1936) and 40: 53--54, 119, 123, 129, & 130. 1936; Moldenke, Geogr. Distrib. Avicenn. 4. 1939; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 24 & 86. 1942; Moldenke, Alph. List Cit. 1: 184--186 (1946), 3: 929 (1949), and 4: 1016 & 1034. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 42 & 177. 1949; Alain, Rev. Soc. Cub. Bot. 13: 37. 1956; Alain in León & Alain, Fl. Cub. 4: 305 & 307. 1957; Conde, Hist. Bot. Cub. 221. 1958; Moldenke, Résumé 50 & 443. 1959; J. A. Clark, Card. Ind. Gen. Sp. Pl. n.d.

Morton found this plant growing in Pinus cubensis woods on limonite and says: "agrees with isotype of cuneifolia in U. S. Nat. Herb., but in my opinion the species is too close to C. ferruginea Swartz. C. revoluta Moldenke seems to be the same also". Material has been misidentified and distributed in herbaria as C. nipensis Britton & P. Wils.

In all, 11 herbarium specimens, including the type, and 6 mounted photographs have been examined by me.

Additional & emended citations: CUBA: Oriente: Alain & López Figueiras 4848 (Z); Ekman 3497a (N); Marie-Victorin & Clément 21730 (Um--25259, Um--25378); Shafer 7741 (W--696369--isotype).

CALLICARPA DENTICULATA Merr., Philip. Journ. Sci. Bot. 3: 430--431. 1909.

Bibliography: E. D. Merr., Philip. Journ. Sci. Bot. 4: 430--431. 1909; Prain, Ind. Kew. Suppl. 4: 34. 1913; H. J. Lam, Verbenac. Malay. Arch. 48, 65--66, & [361]. 1919; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 27. 1921; E. D. Merr., Enum. Philip. Pl. 3: 383. 1923; Moldenke, Alph. List Common Verb. Names 2 & 21. 1939; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 62 & 86. 1942; Moldenke, Phytologia 2: 94. 1945; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 140 & 177. 1949; Moldenke, Résumé 182 & 443. 1959; Hatusima, Mem. Fac. Agr. Kagoshima Univ. 5 (3): 17 & 47. 1966; Moldenke, Résumé Suppl. 14: 4. 1966.

Shrub or small tree, 2--3 m. tall; branches light-gray, glabrous; branchlets densely or very densely stellate-hairy or stellate-plumose-pubescent; leaves decussate-opposite; petioles 1--1.5 cm. long, densely stellate-hairy or stellate-plumose-pubescent, subglabrous or glabrescent in age; leaf-blades submembranous, ovate to broadly elliptic or elliptic-obovate, 10--15 cm. long, 5--9 cm. wide, short-acuminate at the apex, dentate along the margins, acute or subacute to rounded or rarely slightly

cordate at the base, glabrous and shiny above when mature or with some stellate hairs on or along the venation, paler and scattered stellate-hairy and densely glandular-dotted with numerous, shiny, minute, yellow glands beneath; secondaries 5 or 6 pairs, very prominent; veinlet reticulation distinct, brown; cymes solitary, only in the upper leaf-axils, 5 cm. long or less, pedunculate, dichotomous, many-flowered, more or less stellate-pubescent or densely stellate-hairy and plumose; calyx cupuliform, 1.5 mm. long, with a few scattered stellate hairs and minute yellow glands, the rim obscurely 4-toothed; corolla lilac or purplish, nearly 4 mm. long, ampliate upwards, slightly glandular and sparsely hairy with widely scattered hairs, the lobes elliptic, about 1 mm. long, obtuse at the apex; stamens 6 mm. long, long-exserted; filaments about 6 mm. long; anthers glandular, 1.6 mm. long; style very slender, 1 cm. long; ovary somewhat depressed-globose; fruit globose, about 3 mm. wide.

The species was based by Merrill on two collections made by Eugenio Fénix, one [Philip. Bur. Sci. 4023] from Camiguin, and the other [Philip. Bur. Sci. 3622] from Santo Domingo de Basco, Batan, Philippine Islands, on May 30, 1907, both deposited in the herbarium of the Bureau of Science in Manila, but now unfortunately destroyed. Merrill (1909) says: "A species well characterized by its relatively broad leaves, few cymes, and these only in the upper axils, the very long-exserted stamens and style. It has more the facies of Premna than of Callicarpa." The common names "anaif" and "mayop" are recorded for this plant, and it has been found growing in the littoral bush.

Lam (1919) notes also that "Its habit reminds us that of a Premna". Hatusima (1966) places C. kotoensis Hayata, C. japonica var. kotoensis (Hayata) Masamune, and C. longifolia sensu Li in synonymy under C. denticulata, but I regard these three names as belonging in the synonymy of C. japonica var. luxurians Rehd. His Botel Tobago record, therefore, is to be excluded. He also records C. denticulata from Babuyan and cites his nos. 28691 and 29198. The "Datan" record in my Résumé (1959) appears to be a typographic error for "Batan". The species is known to me only from the literature.

CALLICARPA DICHOTOMA (Lour.) K. Koch, Dendrol. 336. 1872.

Additional & emended synonymy: Porphyra dichotoma Lour., Fl. Cochinch., ed. 1, 1: 70. 1790. Callicarpa dichotoma Raeusch., Nom. Bot., ed. 3, 37, nom. nud. 1797. Callicarpa purpurea A. L. Juss., Ann. Mus. Hist. Nat. Paris 7: 67. 1806. Callicarpa foliis subsessilibus, lanceolatis, serratis; racemis dichotomis Poir. in Lam., Encycl. Méth. Suppl. 2: 34, in syn. 1811. Callicarpa fruticosa: ramulis partibusque junioribus obsolete squamosis: foliis subsessilibus, lanceolatis, acuminatis, serratis, basi cuneatâ subintegerrimis, supra glabris, subtus glandulose punctatis; corymbis axillaribus, parvis, dichotomis; floribus glandulosis Roxb. apud J.

A. & J. H. Schult., Mant. 3: 54, in syn. 1827. Callicarpa gracilis Rheede ex Sieb., Jaarb. Konink. Nederl. Maatsch. Aarmoed. Tuinbouw [Ann. Hort. Pays-Bas], ser. 3, 1845: 72. 1845. Callicarpa gracilis Sieb. & Zucc., Abh. Akad. Muench. 3 (4): 154—155. 1846. Callicarpa jamamurasaki Sieb. ex Miq., Ann. Mus. Bot. Lugd.-Bat. 2: 98. 1865. Callicarpa japonica var. angustifolia Savatier, Livres Kwa-wi 78. 1873. Callicarpa sieboldii Zipp. ex H. J. Lam, Verbenac. Malay. Arch. 83, in syn. 1919. Callicarpa dichotoma (Lour.) Raeusch. apud Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 25, in syn. 1921; Nakai, Fl. Sylv. Kor. 14: 28. 1923. Callicarpa japonica var. dichotoma (Lour.) Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 125. 1925. Callicarpa dichotoma (Lour.) Merr. ex P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 507. 1932. Callicarpa koreana Hort. ex Vilm., Bull. Soc. Dendr. France 87: 82, nom. nud. 1933. Galphimia hirsuta Hort. ex Moldenke in Fedde, Repert. Spec. Nov. 40: 84, in syn. 1936 [not G. hirsuta Cav., 1799]. Callicarpa muricata Hort. ex Moldenke, Prelim. Alph. List Invalid Names 12, in syn. 1940. Callicarpa sinica Colebrooke ex Moldenke, Prelim. Alph. List Invalid Names 13, in syn. 1940. Callicarpa japonica var. dichotoma Bakh. apud Rehd., Bibl. Cult. Trees 583, in syn. 1949. Callicarpa dichotoma K. Koch ex Kasapligil, Pl. Jordan 102. 1956.

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Illustrations: Sieb., *Jaarb. Konink. Nederl. Maatsch. Aarmoed. Tuinbouw [Ann. Hort. Pays-Bas]*, ser. 3, 1845: pl. 5 & 6. 1845; Van Houtte, *Fl. Serres*, ser. 2, 3: pl. 1359 [in color]. 1858; Lindl., *Gard. Chron.* 1859: 96. 1859; Groenland, *Rev. Hort.*, ser. 4, 8: 106 & 107. 1859; Lem. & Verschaf., *Illustr. Hort.* 6: pl. 202 [in color]. 1859; E. G. & A. Henderson, *Illustr. Bouquet* 2: pl. 29 [in color]. 1859--1861; Hérincq, *Hort. Franç.*, ser. 2, 3: pl. 4. 1861; *Floral World & Gard. Guide* 4: 192. 1861; Bocq., *Adanson* 3: pl. 8, fig. 8--11. 1863; Bocq., *Rev. Verbenac.* pl. 8, fig. 8--11. 1863; M. T. Masters, *Gard. Chron.* 1871: 173, fig. 38. 1871; W. Robinson, *The Garden* 23: pl. 392 [in color]. 1883; Milner, *Gard. Chron.*, ser. 3, 10: 101, fig. 13. 1891; Shirasawa, *Bull. Coll. Agr. Tokyo Imp. Univ.* 2: [Jap. Laubh. Winterzust.] pl. 14, fig. 9. 1895; Briq. in Engl. & Prantl, *Nat. Pflanzenfam.* 4 (3a): 165, fig. 62B. 1895; Apgar, *Ornament. Shrubs U. S.* fig. 505. 1910; C. K. Schneid., *Illust. Handb. Laubholz.* 2: 587 & 593, fig. 385m. 1911; Varacek, *Oesterr. Gart.-Zeit.* 8: 277, fig. 115. 1913; Nakai, *Fl. Sylv. Kor.* 14: pl. 5. 1923; Nakai, *Trees & Shrubs Indig. Jap.*, ed. 2, 1: 451, fig. 213. 1927; Hottes, *Book Shrubs*, ed. 1, 148. 1928; Blossfeldt, *Art Forms in Nature* pl. 9a. 1929; Hottes, *Book*

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Loureiro's original (1790) description of this plant is: "foliis lanceolatis: racemis dichotomis. Hab. Frutex erectus, 3-pedalis: ramis multis, rectis, debilibus. Folia lanceolata, serrata, punctata, subsessilia, opposita. Flos purpureus, racemis dichotomis, axillaribus. Bacca globosa, violacea, carnosae, plurima, minima. Habitat in collibus provinciae Cantoniensis Sinarum." The type of C. sinica was collected by Nathaniel Wallich (no. 523) from cultivated material in the Calcutta Botanical Garden, Bengal, India, and is deposited in the herbarium of the Universitets Botaniske Museum in Copenhagen. The type of C. muricata is Herb. Hort. Bot. Berol. s.n. deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm.

Recent collectors describe this plant as a shrub, small shrub, undershrub, or bush, woody, erect, and bushy, or even as a climber or vine [Chiao 2787], 2--10 feet tall, with a spread of 1 meter, the stem to 1 inch in diameter, the branches purplish, bark pinkish, buds lavender, flowers fragrant, corolla pink, pinkish, or purplish-pink to pinkish-red, purplish, purple, white, or "white and red", and the fruit globular, at first green, then yellow, red, purplish-red, or "somewhat red", and finally lilac, purplish-lilac, lavender, purple, violet, "beautifully violet", or even "black", shiny, 1/12 inch in diameter. The Nut Trees Nurseries catalogue (1959) describes the fruit as "berries in pendulous ropes". The flowers are said to have been "pink" on Charette 1896, Lau 20141, Tsang 23862, and Tso 20407, "pinkish" on Chiao 2787, "pinkish-red" on Hu 1634, "purplish-pink" on Tso 815, "purplish" on Keng 472, "purple" on Peng, Tak, & Kin 199, "white" on Chiao 2617 and Tsang 22540, and "white and red" on Tsui 395.

The species has been found growing on hills and brushy or rocky slopes, under the shade of bamboo, in good soil, dry sandy soil, or silt, in thickets, woods, and forests, loose summer-green woods, pine woods, open sites and open fields, valleys, swamps, upland peat bogs, and rocky streambeds, along streamsides and roadsides, at the foot of hills, the base of mountains, and the base of high embankments in rice fields, at altitudes of 10 to 600 meters, flowering from April to October, and fruiting from June to November. In India it blossoms from April to September and the fruits ripen at the close of the rainy season. Ching states that it is common in Anhwei, but rare in Kwangsi; Wilson reports it rare in Korea; Fosberg found it "rare in hedgerows between cultivated fields" on

Ikema island. Tsang describes it as fairly common in thickets in Kwangtung, but only as "scattered shrubs" in Kwangsi.

Fox, Godfrey, & Boyce found this species growing wild on the low bank of the Roanoke River in Martin County, North Carolina; Radford found it in an upland peat bog in Henderson County. Tattall (1947) avers that the historic Delaware station is now destroyed. Gates (1940) reports that it is "seldom spreading" from cultivation in Riley County, Kansas. He refers to it as a nanophanerophyte. Wisler (1942--1943) lists it as cultivated in Delaware County, Pennsylvania. I have personally seen it in cultivation at Great Neck, Long Island, New York, in November, 1938, and at Plainfield, New Jersey, in 1966, but have not made collections from these plants. It was recorded by me (1952) as naturalized in Loudoun County, Virginia. Herb. Arnold Arb. 10151 was growing in Massachusetts from seed collected in Korea by E. H. Wilson. Kasapligil (1956) records it as cultivated in Jordan.

Common names for the plant include "beauty berry", "beauty-berry", "Bermuda mulberry", "callicarpe à fleurs purpurines", "Chinese beautyberry", "Chinese callicarpa", "French-mulberry", "Japanese-mulberry", "jewel-berry", "ko murasaki", "ko-murasaki", "komurasaki", "koshikibu", "ko-sikibu", "meka sogi", "murasaki-sibiboo", "mura-saki sikiboo", "purple-mulberry", "purple urn fruit-tree", "purple urn-fruit tree", "sai ip lo hai ngan", "tsu hoa uôn", "tsù-hoa-uôn", and "tsú-kōa-uôn". Of these "Chinese beautyberry" is the recommended name in English, although the very misleading "French-mulberry" is more often used.

Unfortunately, Raeuschel (1797) says only "Callicarpa dichotoma. Sina. h", with no reference to Loureiro's earlier name and no formal description, so his binomial must be rejected under the present edition of the International Rules of Botanic Nomenclature, although it seems obvious that he intended his binomial as a new combination for Loureiro's Porphyra dichotoma, and many later authors have so regarded it.

Schneider (1911) feels that C. shikokiana Mak. may belong in the synonymy of either the present species or that of C. japonica Thunb., but admits that he never saw any authentic specimen of Makino's plant and that his opinion is based merely on a comparison of the published descriptions. Rehder (1934, 1949) reduces C. taquetii Lévl. to synonymy under C. dichotoma, but I regard Léveillé's taxon as C. japonica var. taquetii (Lévl.) Nakai. In my 1936 work and in subsequent papers I placed C. serrulata Zipp. in the synonymy of C. dichotoma, following Bakhuizen van den Brink (1921), but this name actually belongs in the synonymy of C. elegans Hayek instead. Bakhuizen van den Brink (1921) and Hara (1948) include C. glabra H. J. Lam in the synonymy of C. dichotoma, as I also did in my 1936 work, but Lam's plant is now regarded by me as C. lamii Hosakawa. C. dichotoma var. koreana Hort. is regarded by me as a synonym of C. japonica Thunb.

Roemer & Schultes (1818) describe the fruits of the present

plant as "baccis trispermis". Jussieu (1806), Roxburgh (1820), Hooker & Arnott (1828), and Walpers (1845) all refer to the inflorescences as "corymbs"; actually they are cymes. Santamour (1965) reports the chromosome number as $n = 18$, and regards the species as tetraploid.

Wallich (1820) says "I cannot but consider this as Loureiro's plant quoted above which Jussieu has justly placed among the genus Callicarpa. It seems to be nearly allied to C. japonica, but differs chiefly in wanting the smoothness, the short stamina and pistillum and the acute stigma of the latter. The flowers are besides of a beautiful purple colour, especially within, while those of Thunberg's plant are white."

Hooker & Arnott (1828) say "Of this we have two forms before us. That from Bonin has oblong-lanceolate gradually acuminate leaves, and axillary corymbs: the other, from Loo Choo, has roundish-oval suddenly acuminate leaves, and the inflorescence from the uppermost axils only. In both, the young foliage is covered, particularly on the under side, with a mealy pubescence, but in the adult state it is glabrous. In many respects both agree with Roxburgh's description in the Flora Indica." Their Ryukiu Islands collection was probably C. japonica Thunb., and that from the Bonin Islands was probably C. glabra Koidz.

Rehder (1916) says of C. dichotoma: "This species is closely related to C. japonica Thunberg, but can be distinguished from it by the young branchlets being slightly grooved or obscurely angled, by the smaller, less acuminate leaves with fewer teeth pointing more or less forward, by the distinctly supra-axillary slender-stalked inflorescence, and by the smaller flowers with the anthers dehiscent to the base. It is of more southern distribution and seems to be confined to southeastern China and southern Japan, where it reaches Yokohama." In his 1927 work he says "E. and C. China, Korea, cult. in Japan; rarely escaped in E. States. Intr. 1857. Zone (V)." Bean (1951) also gives 1857 as the date of introduction into cultivation, but Van Melle (1947) maintains that 1845 is the correct date. According to Roxburgh, however, the species was introduced into cultivation in the Botanic Garden at Calcutta from China in 1812.

Lam (1919), in speaking of C. elegans Hayek, says: "Its affinity is with C. purpurea. Points of difference are the acuminate apex of the leaves, which is never abrupt, and always serrulate, upper side without any hairs and with some glands, and corolla-lobes as long as the tube." In speaking of C. japonica Thunb., he notes that "Its affinity is also with C. purpurea".

P'ei (1932) says: "Callicarpa dichotoma (Lour.) Raeuch., C. japonica Thunb., and C. japonica Thunb. var. angustata Rehd. are very difficult to separate from each other. C. dichotoma.....may be distinguished from its allies by its smaller flowers, leaves, anthers, and fruits. In its long willow-like leaves which are toothed throughout C. japonica.....var. angustata.....differs from C. dichotoma.....which has short ovate leaves, and which are

toothed only in the upper part. C. japonica.....differs from C. dichotoma.....and its variety by its broadly ovate leaves which are usually suddenly acuminate at the apex. The anthers of C. japonica.....and C. japonica var. angustata.....usually open by lateral pores, while those of C. dichotoma.....open by longitudinal slits."

Li (1963) notes that "This species is native to Korea, Japan and central and southern China. It is perhaps the most widely planted species of Callicarpa. It flowers in August and fruits in around October through November. In its native habitat, it prefers moist places and grows especially abundantly at base of hills and along waters.....It was introduced into western gardens around 1857 by Robert Fortune. Lindley (1859) recorded the first fruiting plant in exhibit at the autumn 1858 meeting of the Horticultural Society in St. James' Hall in London 'excited more interest' than any other plant. This species is closely allied to C. japonica, another commonly cultivated species, but is smaller in every respect. The characters that especially distinguish it from the latter are the young branchlets being slightly grooved or angled, the smaller less acuminate leaves with fewer but more forward-pointing teeth along the margins, the distinctly supra-axillary inflorescence, and the smaller flowers with the anthers dehiscing by a longitudinal slit instead of an apical pore. It is also less hardy as in its original home it is generally of a more southern range."

Bailey (1935) lists as handlers of this species Sanford, the Brooklyn Botanic Garden, L. Späth (Berlin), W. T. Hood & Company (Richmond, Virginia), Towsons (Baltimore, Maryland), Paramus Nurseries (Ridgewood, New Jersey), Rhode Island Nurseries (Newport, Rhode Island), Outpost Nurseries (Ridgefield, Connecticut), Henry F. Mitchell (Philadelphia, Pennsylvania), Hill Top (Hartford, Michigan), Joseph Breck & Sons (Boston, Massachusetts), Rosedale Nurseries (Tarrytown, New York), Eastern Nurseries, Howell Nurseries, Princeton Nurseries, Bobbink & Atkins, W. N. Craig, Thompson & Morgan, Royal Botanic Garden (Edinburgh, Scotland), Henry Dreer (Philadelphia, Pennsylvania), Bay State Nurseries (Framingham, Massachusetts), W. A. Manda (South Orange, New Jersey), Cole Nursery Company (Painesville, Ohio), Bristol Nurseries (Bristol, Connecticut), Siebenthaler Company (Dayton, Ohio), Storrs & Harrison (Painesville, Ohio), Littlefield-Wyman (North Abington, Massachusetts), and Kallay Brothers (Painesville, Ohio). Mattoon (1958) lists 36 sources. In 1959 it was selling in the United States at \$2.75 for a 3-foot bush.

In "Gardening Illustrated" (1887) it is said that "This is an old greenhouse plant, well deserving cultivation although rather straggling in habit. Its shoots are clothed with opposite serrate leaves, and it bears axillary clusters of small purple or amethyst-coloured berries very freely. It may be propagated freely either by means of seeds or cuttings, and young plants, grown as recommended for Ardisias are best; old plants lose their bottom foliage, and become 'leggy' and unsightly." In 1892 the plants sold, in

pots, at chrysanthemum time for \$5 apiece. Bush-Brown (1963) says that it "prefers rich circumneutral soil; fr[uits]...stay fresh for weeks and are attractive for arrangements in the home. In the north this bush is sometimes severely winter-killed; a drastic pruning in early spring is needed to restore its vigor."

Of particular interest are some amusing but on the whole justifiable (from the horticultural standpoint) remarks made by Masters (1871). He says, in part, concerning the genus Callicarpa, but with special reference to C. dichotoma: "See them when in leaf and they are not worth house-room; see them when in flower, and their room is, to use a popular saying, 'worth more than their company'; but see them when in fruit and every one cries out how beautiful!.....Two or three species have from time to time been introduced into our gardens, and some even were figured in botanical records, but generally with a sort of half-apology for occupying space with such mean-looking subjects. They were figured on botanical grounds -- for scientific purposes -- much in the same way that criminals are submitted to the faithful portraiture of the photographic camera, in order that they may be recognized in the future, and their worthlessness made apparent. Such was the case up till 1859, when all of a sudden a furore was excited by the exhibition in St. James Hall of a species of Callicarpa with purple berries, so beautiful that every spectator was loud in its praise. Dr. Lindley led the way in lavishing compliments on the plant, and as it would never do to let such a beauty go unnamed, he called it 'Callicarpa purpurea?' Very sagaciously he put a '?' after the name, knowing by experience that it is no easy matter to determine the species of Callicarpa."

Varacez (1913) comments that "Im Spätsommer schwellen die Kelche der zahlreichen Blumen und sind erst grün, färben sich jedoch etwa Ende September zu einem wunderbaren, auffallenden Lila, und sind glänzend an der Oberfläche. In diesem Stadium erst hat C. purpurea ihren Höhepunkt erreicht und verbleibt so durch den ganzen Herbst und den halben Winter hindurch. Die Beeren enthalten weiszliches Fleisch und jede vier gesunde Samenkörner. Bei dieser Menge von Samen sollte man annehmen, die schöne Pflanze könnte mehr verbreitet sein. Dich welche 'geheimnisvolle Herkunft' hat diese Spezies!"

Van Melle (1942) notes that "Callicarpa dichotoma.....is a useful and decorative Japanese-Chinese shrub, grown mainly for the beauty of its small rounded clusters of lilac berries borne in autumn in the axils of the graceful, arching branches of the current season's growth. A unique and valuable effect, not duplicated by any other shrub. To about 4 ft. high, fairly hardy above New York City. If occasionally killed to the ground, it will develop and fruit in the same manner on new growth from the base." In his 1943 work, this same author elaborates as follows: "Callicarpa dichotoma.....and C. japonica.....are small shrubs, normally about 5 to 7 feet high, not perfectly -- i.e., not reliably -- hardy in our zone and likely to be killed back at least partly; a

matter which does not interfere greatly with their usefulness since they flower and fruit on growth of the current season and may be treated as die-backs. In that case they will grow little more than 3 to 4 feet high. Their one, but considerable, contribution to the border is the effect of their attractive, small, clustered, lilac berries strung along the branches, ripening in the Autumn and remaining effective for a long time. These are sufficient reason to endure their rather uninteresting foliage and insignificant small flowers. Of the two, C. japonica is the more erect-growing, with darker, long-tapering leaves to 6 inches long. C. dichotoma is of a more splashing habit and has smaller, shorter, light-green leaves. Both are unpretentious as to soil and succeed in sun or shade. They are worth planting in a small way for the sake of their pretty berries, which are among the most decorative of autumn effects."

Hottes (1942) says "The Beautyberries produce attractive leaves and the shrubs are quite graceful though upright. In planting them, give a rather protected place. Although the fruits are tiny, they are attractive upon the plant for garden effect. When the fruit is cut and placed in vases, it displays its true charm. Soil. Circumneutral pH 6.0—8.0.....Prune back the plants severely each Spring as the flowers and fruit are borne on new wood." As to methods of propagation he says "1. Cuttings of half-ripe wood are generally used. Give a little bottom heat and humid conditions. Some cover cuttings with a belljar. Protect in frames for Winter or bring into greenhouse. 2. Layers. 3. Seed sown indoors in Fall. 4. Hardwood cuttings would only be successful when they do not freeze."

The Tsui 601 collection, cited below, bears great resemblance to C. japonica Thunb. Pétalot 3039 is also not typical — its leaves are large and the cymes long-pedunculate. F. C. Gates 16499 exhibits a fasciated branch. Hayek (1906), in speaking of C. elegans Hayek, says: "a C. purpurea Juss. foliis coriaceis nec chartaceis in acumen elongatum productis, nitidis, dentatis nec serratis, punctis glandulosis aureis nitidis nec purpureis diversa est."

Schauer (1847) cites Colebrook s.n. and Wallich 1828 from China, Loureiro s.n. from Cochinchina, and Zollinger 348 from Japan. Miquel (1865) cites Göring 348 from Japan. Maximowicz cites Ford s.n., Fortune 94, Hance s.n., and Shearer s.n. from China. Rehder (1916) cites the following: CHINA: Chekiang: D. MacGregor s.n. [Ningpo, 1908]; F. N. Meyer 425. Fukien: Dunn s.n. [Hongkong Herb. 3383]. Kwangtung: Hance 335. JAPAN: Honshiu: Herb. K. Sakurai s.n. [Omiya, June 18, 1911]; Maximowicz s.n. [Yokohama, 1862]. Kiu-shiu: Oldham 628.

P'ei (1932) cites the following: CHINA: Anhwei: Ching 2766; Ip s.n. Chekiang: Ching 3803; Hu 492 & 1634; Keng 472 & 916; D. MacGregor s.n.; F. N. Meyer 425. Honan: A. N. Steward 1714. Hunan:

Handel-Mazzetti 2691. Kiangsi: Chun 4279; Ip 119; A. N. Steward s.n.; Wang-te-Hui 235. Kiangsu: Hancock s.n.; Hers 2301; Ling 2489; A. N. Steward s.n.; Tso 815 & 1716. Kwangtung: Chun 5538; C. O. Levine s.n.; Mell 322; E. D. Merrill s.n.; Peng, Tak, & Kin 199 & 924; Tso 20407 & 21075. Kweichow: Handel-Mazzetti 2142.

CHINESE COASTAL ISLANDS: Honam: C. Herb. 1197. Li (1963) cites A. Henry 435, but I regard this as C. formosana Rolfe.

Material of C. dichotoma has been misidentified and distributed in herbaria under the names C. americana L., C. japonica Thunb., and C. japonica var. taquetii Nakai. On the other hand, the Chun & Chien 5090, Herb. Canton Chr. Coll. 14649, Herb. Univ. Nanking 8065, and Tak & Chow 2788, distributed as C. dichotoma, are actually C. bodinieri Lévl.; C. H. Cheng 3080, R. C. Ching 1652 & 6394, M. L. Hancock s.n. [Herb. Univ. Nanking 12075], Herb. Univ. Nanking 7717 & 7794, Ling 1127 & 1243, E. D. Merrill 11298, and Peng, Tak, & Kin 678 [Herb. Canton Chr. Coll. 12677] are C. bodinieri var. giraldii (Hesse) Rehd.; Swartz s.n. [Jamaica] is the type collection of C. ferruginea Sw.; A. Henry 435 is C. formosana Rolfe; Chiao s.n. [Herb. Univ. Nanking 18896] is C. japonica Thunb.; Barchet 557, Cheng 578 & 3904, Chiao 1606, 1612, & 2916, R. C. Ching 5666, Hayakawa's collector A.4, Herb. Canton Chr. Coll. 12677, Herb. Univ. Nanking 7754, 18595, & 18601, Lau 4409, C. O. Levine s.n. [Herb. Canton Chr. Coll. 1751 & 3353], Ling 1189, E. D. Merrill 11112, A. N. Steward s.n. [Herb. Univ. Nanking 2426], Tsang 21346, and Tsui 450 are C. japonica var. angustata Rehd.; Chiao 2617 is C. japonica var. rhombofolia H. J. Lam; Ching 6394 is C. longifolia Lam.; Chong s.n. [Wan-Do, 29th October 1950] is the type collection of C. randaiensis var. koreana Moldenke; and C. Wright s.n. [Bonin Islands] is C. subpubescens Hook. & Arn.

According to C. E. Kobuski, in a letter to me dated April 2, 1962, the E. H. Wilson 8518 specimen from Dagelet Island, in the Arnold Arboretum herbarium, is Ligustrum foliosum f. ovale Nakai in the Oleaceae, but the United States National Herbarium specimen of the same number, from Ullung Island, is plainly C. dichotoma (although its label is inscribed "Lilium tigrinum"). Apparently there has been some serious mix-up in labeling involved here.

In all, 286 herbarium and fruit specimens and 11 mounted photographs have been examined by me.

Additional & emended citations: NORTH CAROLINA: Henderson Co.: Radford 4849 (Hi--48259). Martin Co.: Fox, Godfrey, & Boyce 4392 (N). INDIA: Uttar Pradesh: W. Griffith 335 (S). State undetermined: W. Griffith s.n. [Sumbhulpon] (S); Wallich 14 (S). CHINA: Anhwei: Ip s.n. [Herb. Univ. Nanking 5120] (Ca--232662). Chekiang: R. C. Ching 3803 (Ca--343263); Hu 1634 (Ca--362316); Keng 916 (Ca--361960); F. N. Meyer 425 (Ar--19785, Ca--218982, Du--11058). Honan:

A. N. Steward 1714 [Herb. Univ. Nanking 9842] (Ca--270559, W--1370062). Hunan: Fan & Li 353 (Bz--17568), 487 (Bz--17564). Kiangsi: Ip 119 [Herb. Univ. Nanking 7704] (Ca--258866); S. K. Lau 4521 (S, W--1753185); A. N. Steward s.n. [Herb. Univ. Nanking 2714] (Ca--230391, W--1279529); Tsiang 9882 (N). Kiangsu: H. T. Chang 344 (Du--250177); M. L. Hancock s.n. [Herb. Univ. Nanking 12074] (Ca--294848); K. Ling 2489 [Herb. Univ. Nanking 12440] (Ca--316401); A. N. Steward 2763 (Ph). Kwangsi: Ching 5201 (N); Steward & Cheo 930 (N, S); W. T. Tsang 22540 (S), 23862 (N), 24417 (N). Kwangtung: Herb. Bot. Mus. Stockholm s.n. [Canton] (S); S. K. Lau 20141 (Bz--17567, Ca--611459, N, N); Liou 1660 (N); Peng, Tak, & Kin 199 [Herb. Canton Chr. Coll. 12198] (Ca--274692, S, W--1247568), 924 [Herb. Canton Chr. Coll. 12923] (Ca--274410, S, W--1248134); Tso 20407 (N, N), 21075 (N, N); Tsui 395 (Ba, Bz--17565, N, W--1754642), 450 (N), 601, in part (Ba, Bi, Bz--17566, N), 666 (N, W--1754800). Shantung: Chiao 2787 (N, W--1596247), 2916 (N, N); Zimmermann 210 (Bz--17655), 465 (Bz--17654). Province undetermined: Fortune A.96 (K); Hu 492 (Ca--246815). CHINESE COASTAL ISLANDS: Honam: C. O. Levine s.n. [Herb. Canton Chr. Coll. 1197] (Ka--62899, W--1010299, W--1173183). INDOCHINA: Tonkin: Du Pasquier 3039 (Ca--344663, N); Pételot 1431 (Ca--227765, N, W--1717019), 3039 (Du--200930). KOREA: In-cho 1104 (Mi, Mi); In-cho's collector 9904 (Mi); R. K. Smith s.n. [August 1934] (Mi); E. H. Wilson 9348 (W--1052033). KOREAN COASTAL ISLANDS: Ullung: E. H. Wilson 8518, in part [Ullung Is.] (W--1054129). WESTERN PACIFIC ISLANDS: JAPAN: Honshiu: Charette 1896 (W--2247891); Collector undetermined s.n. [Musachi] (W--1133078), s.n. [Musashi, Oct. 22, 1893] (W--206184); Furuse s.n. [20 Oct. 1955] (S), s.n. [23 Oct. 1956] (S), s.n. [17 Aug. 1959] (S); Hiroe 12141 (Ca--82141); T. Koyama s.n. [Kadausa, 18 July 1954] (Ss), s.n. [Musashi, 3 August 1954] (Z); Y. Matsumura 1673 (N); Suzuki UC.8-105 [Herb. Suzuki 457010] (Ca--942079); Togasi 380 (B, Ca--955796, Go, Mg, Mi, N, Vi, W--2242154), s.n. [Hondo, Jul. 13, 1951] (S); E. H. Walker 5712 (W--2064953). Kiushiu: Herb. Mus. Bot. Stockholm s.n. [4/9/1913] (S). Island undetermined: Bridges s.n. (K); Herb. Lugd. Batav. s.n. [Japonia] (S); H. L. Jones s.n. [Japan, July 1] (Ob--14852); Masamune s.n. [Bizen, Oct. 10, 1925] (N). RYUKYU ISLAND ARCHIPELAGO: SAKISHIMA ISLANDS: Ikema: F. R. Fosberg 38552 (Sm). CULTIVATED: Algeria: R. Maire s.n. [Rou-tlea, 7-6-1934] (Ca--595254, S). California: Newberry s.n. (F--45279); Walther s.n. [Golden Gate Park, Oct. 1930] (Gg--179083). District of Columbia: A. S. S. s.n. [Botanical Garden] (W--147602); Vasey s.n. [Agricultural Grounds] (W--56134); Ward s.n. [Agricultural Grounds] (W--245340). England: Hort. Veitch s.n. (Bm--fruit).

Florida: Fennell 641 [U. S. Pl. Introd. 102922] (Oa--9183), 704 [U. S. Pl. Introd. 102922] (Oa--9179). Germany: Herb. Hort. Berol. s.n. [1854] (B, S). India: Herb. Griffith 6043 (B); Herb. Hort. Bot. Calcutt. s.n. (B, Bz--17661, Ed, Ed, Mu--988, Mu--1161, V, X); Voigt s.n. [H. B. Seramp.] (Cp, Cp, Cp); Wallich 523 (Cp), 1828 (B, B, B, Ed), s.n. (Cp). Java: Herb. Hort. Bot. Bogor. XV. KA.XIV.6 (Bz--26431, Bz--26432, Bz, Bz, Bz, Bz, Bz). Kansas: F. C. Gates 14533 (Ka--71494, Um--821), 14548 (Ka--71506), 14963 (Bt--12678, E--1079876, Ka--71391, Ob--50626, Vi), 16499 (Ka--75813). Maryland: Coville s.n. [Garden of Whitman Cross, Chevy Chase, Oct. 29, 1926] (Ar--19787). Massachusetts: Blazic s.n. [July 21, 1922] (Gg--31979); Herb. Arnold Arb. 1088-2 (B), s.n. [Sept. 30, 1913] (Gg--31985); Kidder s.n. [21 Aug. 1925] (Oa--10746); Leavitt s.n. [Cambridge, Oct. 13, 1898] (Oa); E. J. Palmer s.n. [Herb. Arnold Arb. 10151; seed of E. H. Wilson 9348] (Ur); Rehder s.n. [1088-1] (Ur), s.n. [Arnold Arb., 10.IX.1898] (Ur), s.n. [Arnold Arb., 21. XI.1898] (Ur, Ur), s.n. [Sept. 28, 1915] (Ur), s.n. [Aug. 21] (B), s.n. [Oct. 31] (B), s.n. [Arnold Arboretum] (E--119313, Mi--photo); R. E. Torrey s.n. [Amherst, Sept. 12, 1942] (Ms); A. P. Wymans s.n. [July 23; Arn. Arb. 1088] (Io--34570), s.n. [Oct. 7; Arn. Arb. 1088] (Io--34569). Missouri: Cult. Mo. Bot. Gard. s.n. (E--119265); D. B. Dunn 12620 (Lb--39800); Flickinger s.n. [Webster Park] (E--801012); A. Koch s.n. [April 22] (E--119219); H. W. R. s.n. (E--119263); Shaw School of Botany s.n. (E--119294). New Jersey: H. N. Moldenke 2689 (N), 9315 (Ba, Br), 19138 (N, Or), 20130 (Sm). New York: K. R. Boynton s.n. [Bronx Park, July 8, 1924] (Ca--513050); W. W. Denslow s.n. [July 1864] (Ms), s.n. [Sept. 1865] (Ms); Quinn s.n. [6-10-38] (N); Tidestrom 4085 (Ar--19791). North Carolina: Biltmore Herb. 4189 [August 2nd, 1897; Herb. Umbach 4506] (Al, B, B, Ca--513050, E--119264, E--702009, Ur, Vt, Vt, W--332096, We), 4189 [September 20th, 1897; Herb. Umbach 4506] (Al, B, Ur, Vt, Vt, We); Le Clair s.n. [Chapel Hill, Nov. 17, 1938] (Hi--3467); Lindley s.n. [Greensboro, Oct. 1931] (Hi--59417); A. C. Mathews s.n. [Chapel Hill, October 5, 1938] (Hi--10083); Packard & Harrison s.n. [Biltmore Estate, Sept. 13, 1899] (Ar--19790), s.n. [Sept. 20, 1899] (Io--29668); P. O. Schallert s.n. [Winston-Salem, 7/25/26] (Vt), s.n. [7/10/27] (Ew), s.n. [Winston-Salem, 6/20/34] (V). Ohio: Rob. Burton s.n. [October 1946] (Ws). Pennsylvania: MacElwee s.n. [West Philadelphia] (D--514126); Martindale s.n. [Meehan's Nurseries, July 1876] (Pr); Porter s.n. [Lafayette College, Easton] (F--317329); W. H. Rhoades s.n. [North Wales, August 1934] (Bt--29653, Bt--44906, Hs); Westerfeld 2502 (We). Russia: Virchou s.n. [Batoum, 10 Oct. 1811] (B). Virginia: Towne s.n. [October 1895] (No--25644). LOCALITY OF COLLECTION UN-

DETERMINED: Muenschner & Burkholder s.n. (Ca--513049).

CALLICARPA DICHOTOMA f. ALBIFRUCTA Moldenke, Phytologia 7: 429. 1961.

Bibliography: Moldenke, Phytologia 7: 429. 1961; Moldenke, Biol. Abstr. 36: 4036. 1961; Moldenke, Résumé Suppl. 3: 27. 1962; Hocking, Excerpt. Bot. A.5: 44. 1962.

This form differs from the typical form of the species in having white fruits.

The type of the form was collected by M. Togasi (no. 1667) from plants in cultivation at Settsu, Yamamoto, Honshiu, Japan, on September 21, 1957, and is deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm. In all, 3 herbarium specimens, including the type, have been examined by me.

Citations: CULTIVATED: Japan: Togasi 1667 (N--isotype, S--type, W--2335139--isotype).

CALLICARPA DICHOTOMA var. SINUATO-DENTATA Dop, Bull. Soc. Hist. Nat. Toulouse 64: 507. 1932.

Bibliography: P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 507. 1932; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 59 & 86 (1942) and ed. 2, 135 & 177. 1949; Moldenke, Résumé 175 & 443. 1959.

This variety differs from the typical form of the species in having its leaf-blades acuminate-caudate and sinuate-dentate along the margins of the upper half.

The type of the variety was collected by Benedict Balansa (no. 926) at Ouonbi, Tonkin, Indochina. Dop (1932) says: "En l'absence de fleurs je fais de cette plante une simple variété. Une connaissance plus complète de ses caractères permettra peut-être de l'élever au rang d'espèce". I know nothing of this taxon besides what is stated in the original description.

CALLICARPA DOLICHOPHYLLA Merr., Philip. Journ. Sci. Bot. 7: 339--340. 1912.

Synonymy: Callicarpa caudata var. glabriuscula H. J. Lam, Verbenac. Malay. Arch. 61. 1919.

Bibliography: Schau. in A. DC., Prodr. 11: 645. 1847; E. D. Merr., Philip. Journ. Sci. Bot. 7: 339--340 (1912) and 12: 108 & 301. 1917; H. J. Lam, Verbenac. Malay. Arch. 47, 50, 61, & 82. 1919; Prain, Ind. Kew. Suppl. 5: 43. 1921; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 26. 1921; E. D. Merr., Enum. Philip. Flow. Pl. 3: 384. 1923; Moldenke in Fedde, Repert. Spec. Nov. 40: 98. 1936; Moldenke, Prelim. Alph. List Invalid Names 10 & 11. 1940; Moldenke, Alph. List Invalid Names 8 & 10. 1942; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 62 & 82 (1942) and ed. 2, 140 & 177. 1949; Moldenke, Résumé 182, 242, & 443. 1959; Moldenke, Phytologia 14: 142. 1966.

Shrub, 2 m. tall, or small tree, entirely glabrous or the younger parts more or less pubescent with simple (not stellate) hairs, a few hairs sometimes persistent on the leaves, especially beneath;

stems 2—3 cm. in diameter; branches terete or somewhat compressed, brown, smooth, glabrous or somewhat pubescent when young; branchlets somewhat hairy with simple hairs or subglabrous; leaves decussate-opposite; petioles 0.5—2.5 cm. long; leaf-blades chartaceous, lanceolate, 12—30 cm. long, 2.5—7 cm. wide, acuminate or rather slenderly acuminate at the apex, subentire or crenate- to crenulate-denticulate along the margins, acute or acuminate at the base, sometimes puberulent or pubescent with simple hairs on both surfaces when immature, the lower surface more densely hairy and glandular, mostly entirely glabrous or subglabrous on one or both surfaces when mature, the lower surface distinctly yellow-glandular, the glands in minute pits; secondaries 13—16, distinct, curved-ascending, anastomosing, the reticulation subparallel; cymes axillary, solitary, lax, 3.5—6 cm. long, 4—6.5 cm. wide, often as wide as long, somewhat pubescent with simple hairs; peduncles about 1.5 cm. long, usually longer than the petioles; calyx cupuliform or somewhat infundibular, 1—1.5 mm. long, glabrous, its rim 4-denticulate, the teeth short, obscure; corolla somewhat exserted, violet or reddish, 2.5—3 mm. long, glabrous, its tube somewhat ampliate upwards; stamens exserted; anthers 0.6 mm. long; immature fruit globose, small, white when mature, containing 4 pyrenes.

The type of this species was collected by Hugh Cuming (no. 1330) at Cagayan, Luzon, Philippine Islands, and was deposited in the herbarium of the Philippine Bureau of Science at Manila, but is now destroyed. Lam's C. caudata var. glabriuscula was based on the same collection, and this collection was cited by Schauer (1847) as C. longifolia α subglabrata, along with six other collections from India, Java, and Japan. This fact has led some authors to regard Schauer's trinomial to belong, in part, at least, in the synonymy of C. dolichophylla. However, since Schauer plainly proposed his name merely as a designation for the typical form of C. longifolia Lam., I feel that it should be placed only in the synonymy of that species. His citation of Cuming's plant was only a misidentification on his part.

Merrill (1912) cites, in addition, a Ramos s.n. [Herb. Philip. Bur. Sci. 8268] from Luzon, in the Philippine Bureau of Science Herbarium, now destroyed. He comments that Schauer's description of C. longifolia α subglabrata "does not apply particularly well to the Philippine plant, which to me does not appear to be very closely allied to Lamarck's species. It is well characterized by lax cymes and its entirely glabrous vegetative parts, or if pubescent at all, then with simple, not stellate hairs, in this last character differing from most, if not all, other species of the genus. Two specimens of Cuming's No. 1330 are in the Herbarium of the Bureau of Science, one with rather narrow, somewhat pubescent leaves, and with pubescent stems and inflorescence, quite manifestly a young stage of the plant, the other with larger, glabrous leaves and inflorescence; this latter I have made the type sheet."

Some specimens of C. longissima (Hemsl.) Merr. greatly resemble

the M. Ramos 2037 collection cited below, and the two species are certainly closely related. Lam (1919) says of C. dolichophylla: "It has the habit of C. longifolia, but is essentially different by its simple hairs" and "folia quam in var. β [= C. caudata Maxim.] angustiora". Bakhuizen van den Brink (1921) placed it in the synonymy of C. longifolia Lam. with a question. Merrill (1923) comments that "This is remote from Callicarpa longifolia Lam., where Bakhuizen has erroneously placed it as a synonym."

The species has been found growing in open places and damp soil on the borders of forests, at 2000 feet altitude, flowering and fruiting in March. The flowers are described as "violet" on Herb. Philip. Bur. Sci. 46779. Material has been misidentified and distributed in herbaria under the names C. longifolia Lam., C. longifolia var. subglabra Schau., C. longifolia var. subglabrata Schau., and C. pentandra var. typica f. genuina Bakh.

In all, 9 herbarium specimens, including type material of both names involved, and one mounted photograph have been examined by me.

Citations: WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Luzon: Cuming 1330 (M--isotype, V--isotype, Z--photo of isotype); M. Ramos 2037 (Bz--18533, N), s.n. [Herb. Philip. Bur. Sci. 1063] (N); Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 46779] (B, Bz--17570, Ca--309301, N).

CALLICARPA ELEGANS Hayek in Fedde, Repert. Spec. Nov. 2: 88. 1906.

Synonymy: Callicarpa serrulata Zipp. ex H. J. Lam, Verbenac. Malay. Arch. 83, in syn. 1919.

Bibliography: Hayek in Fedde, Repert. Spec. Nov. 2: 88. 1906; E. D. Merr., Philip. Journ. Sci. Bot. 7: 338. 1912; Prain, Ind. Kew. Suppl. 4: 34. 1913; Fedde, Repert. Spec. Nov. Gesamtverz. 58. 1914; H. J. Lam, Verbenac. Malay. Arch. 50, 73, & 83--84. 1919; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 25 & 26. 1921; E. D. Merr., Enum. Philip. Flow. Pl. 3: 384. 1923; H. J. Lam in Engl., Bot. Jahrb. 59: 25. 1924; Kanehira, Fl. Micron. 456. 1933; Moldenke, Alph. List Common Vern. Names 29, 62, 63, & 86. 1939; Moldenke, Phytologia 2: 94. 1945; Moldenke, Alph. List Invalid Names Suppl. 1: 3. 1947; Moldenke, Alph. List Cit. 2: 602 (1948) and 4: 1259. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 140, 142, & 177. 1949; Moldenke, Phytologia 3: 140 (1949) and 4: 77. 1952; Moldenke, Résumé 182, 185, 186, 242, & 443. 1959; Moldenke, Résumé Suppl. 3: 21--23. 1962; Moldenke, Phytologia 14: 112, 117, 141, 162, 163, & 166. 1966.

Slender bush or very lax shrub, 1--3 m. tall, or a shrubby climbing vine; stem to 1.6 cm. in diameter; wood soft, sappy, white, odorless, tasteless; bark smooth, grayish-white; branches arising from below the middle, slender, lax, subtetragonal, floccose-tomentose or with sparse stellate hairs when young, glabrous in age, eglandular, re-branched; leaves decussate-opposite, very short-petiolate, nearly flat, chiefly horizontal; petioles 3--10

mm. long; leaf-blades chartaceous (or coriaceous, according to Hayek and Elmer), lanceolate, 4.5--14 cm. long, 1--4.5 cm. wide, shiny bright-green above, duller and paler beneath, acuminate at the apex or attenuate into a long linear acute apex, regularly serrate or serrulate along the margins except near the base, attenuate into the petiole at the base, glabrous on both surfaces, sparsely glandulose above with shiny golden glands, more densely so beneath, with some stellate hairs on the midrib and some larger glands near it; secondaries 4--6 pairs; inflorescence axillary; cymes few-flowered, slender, loose, 1--3 cm. long and wide, 1/3--1/2 as long as the subtending leaves, nearly glabrous; peduncles dark purplish-blue, 0.5--1.5 cm. long, almost twice as long as the subtending petioles, sparsely tomentose with deciduous hairs; pedicels dark purplish-blue, sparsely tomentose with deciduous hairs; flowers odorless; calyx with more of a greenish tinge in the blue, 1--1.5 mm. long, glabrous, somewhat glandular, its rim truncate or hardly 4-denticulate; corolla blue, bluish-yellow, or violet-blue to rose, purple, or pinkish-white, its tube 1.5 mm. long, the lobes 1.5 mm. long, somewhat glandulose; stamens 5 mm. long; filaments blue; anthers yellow or deep-yellow, glandulose on both sides; style whitish, 4 mm. long; stigma greenish; ovary glandulose; fruit green when immature, blue to purple or violet when ripe, globose, about 3--6 mm. wide, hanging, very pretty, somewhat depressed above, glabrous, eglandular, subtended by the persistent green fruiting-calyx.

The type of this species was collected by Hugh Cuming (no. 1460) in the province of Camarines Sur, Luzon, Philippine Islands. Hayek, in his original description (1906) says: "Foliorum forma Callicarpae caudatae Maxim. simillima, differt foliorum glabritie et serratura maiore nec non indumento ramorum diversa; a C. purpurea Juss. foliis coriaceis nec chartaceis in acumen elongatum productis nitidis. dentatis nec serratis [yet in his diagnosis he says "margine regulariter serrata"], punctis glandulosis aureis nitidis nec purpureis diversa est." This is the first reference that I can recall to any "purple glands" on the leaves of C. dichotoma (Lour.) K. Koch! Kanehira (1933) misspells Hayek's surname "Heyek". Mrs. Clemens says of her no. 16800 "probably a shade form of C. formosana; note droop of inflorescence". Bakhuizen van den Brink (1921) places C. elegans, C. serrulata, C. longifolia var. brevipes Benth., and C. brevipes (Benth.) Hance in the synonymy of what he calls C. japonica var. dichotoma [= C. dichotoma (Lour.) K. Koch]. In my 1936 work and my other papers previous to the present one I also placed C. serrulata Zipp. there, but this seems to be incorrect. The reference sometimes given to Just, Bot. Jahresber. 33: 88 (1905) appears to be erroneous.

Callicarpa elegans has been found growing in coral reef forests, thickets near the sea, open forests on slopes, and forests on the summit of hills, on dry forested slopes, in stony-gravelly soil of

riverbeds, and near rivers, at altitudes of 10 to 665 meters, flowering in February, April, May, July, August, and December, and fruiting in February, April, May, September, October, and December. Vernacular names recorded for it are "gárnei", "gerrucóu", "gerucáu", "gorruau", "haruei", and "tambalabási".

The flowers are described as "pinkish-white" on Williams 340, "bluish-yellow" on Herb. Philip. Bur. Sci. 49011, "blue" on Elmer 12144, "violet-blue" on Herb. Philip. Bur. Sci. 43103, and "purple" on Takamatsu 1218.

Lam (1924) says "die Blätter werden zusammen mit Betel gekaut" in the Palau Islands. In his 1919 work he comments that "Its affinity is with C. purpurea. Points of difference are the acuminate apex of the leaves, which is never abrupt, and always serrulate, upper side without any hairs and with some glands, and corolla-lobes as long as the tube". In this work he cites a Ramos s.n. [Abra, Luzon, Feb. 1909] (Le--911.135-278), while in his 1924 work he cites Ledermann 14358 from Babelthuap and Ledermann 14065, 14201, & 14257a and Raymundus 129 from Koror. Under what he calls C. cana var. latifolia H. J. Lam [= C. candicans (Burm. f.) Hochr.] he cites a Volkens 439 from Yap with a question and a note "cf. C. elegans".

Takamatsu 1218 does not appear to be typical; the collector describes it as an abundant shrub in dry fields.

Merrill (1912) says: "The species appears to be quite widely distributed in the northern Philippines". He cites, in addition, Curran s.n. [Herb. Philip. Forest. Bur. 7018], Hallier s.n., Merritt & Darling s.n. [Herb. Philip. Forest. Bur. 13994], and M. Ramos s.n. [Herb. Philip. Bur. Sci. 4815] from Luzon, and Merritt s.n. [Herb. Philip. Forest. Bur. 6725] from Mindoro.

Material has been misidentified and distributed in herbaria under the names C. cana var. glabriuscula Lam., C. formosana Rolfe, and C. paucinervia Merr.

In all, 48 herbarium specimens and 2 mounted photographs, including material of the type collection, have been examined by me.

Citations: WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Bohol: M. Ramos s.n. [Herb. Philip. Bur. Sci. 43103] (Ca--242444), s.n. [Herb. Philip. Bur. Sci. 43186] (Ca--242445). Leyte: Edaño s.n. [Herb. Philip. Bur. Sci. 41674] (Bz--17658, Ca--239174). Luzon: M. S. Clemens 16800 (Ca--285341), 17073 (Ca--285316); Cuming 1460 (N--isotype); Edaño s.n. [Herb. Philip. Bur. Sci. 48817] (Ca--321236); Haenke 73 (Ca--280929); Loher 14887 (Ca--243059), s.n. [Montalban, May 1915] (Ca--229197); Otanés s.n. [Herb. Philip. Bur. Sci. 17851] (Bi); M. Ramos s.n. [Herb. Philip. Bur. Sci. 7054] (N), s.n. [Herb. Philip. Bur. Sci. 33146] (Ca--216187); R. S. Williams 340 (N). Mindanao: Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 49011] (Ca--324035). Panay: Edaño s.n. [Herb. Philip. Bur. Sci. 42365] (Ut--6305a). Sibuyan: Elmer 12144 (Bi, Bz--

17659, Mi—photo, N, Ut—28763, V, Vi, Vt, Z—photo). MARIANA ISLANDS: Rota: Kanehira 1758 (N). Saipan: Kanehira 1026 (N), 2246 (N). Island undetermined: Haenke 798 (N). PALAU ISLANDS: Babelthuap: Takamatsu 1218 (Bi, Ca—995254). Koror: Herre 53 (Bi, N), 66 (Bi, N). Makarakol: Hosokawa 9273 (Bi, Mi). Todaiyama: Kanehira 1886 (N). Yap: Kanehira 1204 (Bi, N). Island undetermined: Hosokawa 7195 (Bi); Tuyama s.n. [29 Aug. 1937] (Bi). MICRONESIA: CAROLINE ISLANDS: Auluptagel: Hosokawa 7454 (Bi, Mi). Corol: Kanehira 248 (Bi, N), 249 (N), 1995 (N), 2412 (N).

CALLICARPA ERIOCLONA Schau. in A. DC., Prodr. 11: 643. 1847.

Synonymy: Callicarpa cana var. repanda Warb. in Engl., Bot. Jahrb. 13: 426. 1891. Callicarpa repanda (Warb.) K. Schum. & Warb., Notizbl. Bot. Gart. Berlin 2: 144. 1898. Callicarpa repanda K. Schum. & Warb. apud Thiselt.-Dyer, Ind. Kew. Suppl. 2: 32. 1904. Callicarpa erioclona var. repanda (Warb.) H. J. Lam, Verbenac. Malay. Arch. 78. 1919. Callicarpa erioclona var. typica H. J. Lam, Verbenac. Malay. Arch. 77. 1919. Callicarpa fumata Zipp. ex H. J. Lam, Verbenac. Malay. Arch. 77, in syn. 1919. Callicarpa erioclona var. typica f. typica Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 19. 1921. Callicarpa candida Elm. ex E. D. Merr., Enum. Philip. Flow. Pl. 3: 384, hyponym. 1923. Callicarpa erioclona var. repanda H. J. Lam in Lauterb., Engl. Bot. Jahrb. 59: 89. 1924. Callicarpa erioclona Schau. ex Moldenke, Alph. List Invalid Names Suppl. 1: 3, in syn. 1947. Verbena erioclona Schau. ex Moldenke, Résumé Suppl. 3: 37, in syn. 1962. Callicarpa lagunensis Merr. ex Moldenke, Résumé Suppl. 4: 11, in syn. 1962. Callicarpa erioclona var. typica f. genuina Bakh., in herb.

Bibliography: Schau. in A. DC., Prodr. 11: 643. 1847; Miq., Fl. Ind. Bat. 2: 889. 1856; Benth. & Muell., Fl. Austral. 5: 57. 1870; Scheffer, Ann. Jard. Bot. Buitenz. 1: 41. 1876; Vidal, Revis. Pl. Vasc. Filip. 208. 1886; Warb. in Engl., Bot. Jahrb. 13: 426. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew. 1: 386. 1893; K. Schum. & Warb. in K. Schum., Notizbl. Bot. Gart. Berlin 2: 144. 1898; K. Schum. & Lauterb., Fl. Deutsch. Schutzgeb. Südsee 522. 1900; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 32. 1904; E. D. Merr., Philip. Journ. Sci. Bot. 1, Suppl. 1: 121. 1906; Elm., Leaflet. Philip. Bot. 3: 866. 1910; E. D. Merr., Philip. Journ. Sci. Bot. 9: 134 & 135. 1914; H. J. Lam, Verbenac. Malay. Arch. 49, 71, 76—78, & [361]. 1919; Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 10 & 18—20. 1921; E. D. Merr., Enum. Philip. Flow. Pl. 3: 384. 1923; E. D. Merr., Journ. Malay. Br. Roy. Asiat. Soc. 1: 32. 1923; H. J. Lam in Lauterb., Engl. Bot. Jahrb. 59: 89. 1924; Bakh. in Bakh. & Lam, Nov. Guinea 14, Bot. 1: 167. 1924; P. Dop, Bull. Soc. Hist. Nat. Toulouse 64: 500, 502, 511, & 512. 1932; Moldenke in Fedde, Repert. Spec. Nov. 40: 112. 1936; Moldenke, Alph. List Common Vern. Names 17, 23, 26, & 29—31. 1939; Moldenke, Prelim. Alph. List Invalid

Names 10 & 12. 1940; Moldenke, *Known Geogr. Distrib. Verbenac.*, ed. 1, 59, 62, 64, 65, 67, 68, & 86. 1942; Moldenke, *Alph. List Invalid Names* 8--10. 1942; Moldenke, *Phytologia* 2: 94. 1945; Moldenke, *Alph. List Cit.* 1: 4, 224, & 225 (1946), 2: 403, 404, 463, & 556 (1948), 3: 969 (1949), and 4: 1115, 1158, 1161, 1226, & 1259. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, ed. 2, 135, 140, 144--146, 148, 150, & 177. 1949; Moldenke, *Revist. Sudam. Bot.* 8: 172. 1950; Moldenke, *Phytologia* 3: 293--296 & 380 (1950) and 4: 78, 87, & 121--123. 1952; Moldenke, *Inform. Mold. Set 51 Spec.* 2. 1956; Moldenke, *Résumé* 155, 175, 177, 182, 185, 186, 189, 191--194, 200, 203, 240, 242, 243, 246, 247, 427, & 443. 1959; Moldenke, *Résumé Suppl.* 1: 12. 1959; Moldenke, *Phytologia* 8: 57 (1961) and 8: 176 & 385. 1962; Hocking, *Excerpt. Bot. A.5:* 45. 1962; Moldenke, *Biol. Abstr.* 37: 1062. 1962; Moldenke, *Résumé Suppl.* 3: 21--23 & 30 (1962), 4: 8, 9, & 11 (1962), 12: 8 (1965), and 14: 7. 1966; Moldenke, *Phytologia* 13: 502 (1966) and 14: 37, 48, 107, 111, 113, 114, 117--120, & 122. 1966.

Lax and straggling or tall shrub, 1--10 m. tall, or small tree 3 m. tall, erect or semi-climbing; stems 1.5--6 cm. in diameter, loosely branched from below the middle; wood rather hard, "pale-white", odorless, tasteless; bark yellowish, especially beneath the smoothish epidermis; branchlets very hirsute, ferruginous-plumose, or lanate-tomentose and also white-farinose; leaves decussate-opposite, horizontally spreading, slightly recurved; petioles 1--3.5 cm. long, 4 mm. thick, canaliculate, very hirsute-tomentose with ferruginous-plumose hairs and also white-farinose; leaf-blades submembranous or membranous to subchartaceous, diverse in size, deep- or dark-green above, glaucous or yellowish-glaucous to gray-brown beneath, lanceolate, oblong-lanceolate, or broadly lanceolate to elliptic-oblong, obovate-oblong, obovate, or broadly ovate, 9--26 cm. long, 3.5--14 cm. wide, acuminate or subabruptly acuminate at the apex, denticulate (except at the base) or shortly and unequally dentate along the margins, sometimes irregularly so, acuminate or subabruptly acuminate to cuneate or obtuse at the base, the upper surface stellate-hairy when immature, smooth and glabrous when mature, reticulate-rugulose, the lower surface very densely stellate-tomentose with white and very short farinose hairs, often ashy with fine brown hairs (brownish-plumose) on the midrib and secondaries beneath; secondaries 7--15 per side; cymes crowded, many-flowered, hemispheric-corymbose, 2.5--5 cm. long, 2.5--9 cm. wide, usually small, sometimes larger, very hirsute and ferruginous-plumose; peduncles 0.7--2 cm. long, usually subequaling or shorter than the subtending petiole, sometimes longer, lanate-tomentose with ferruginous hairs and also white-farinose; pedicels very short, stellate-tomentose; flowers odorless; calyx exiguous, 1--1.3 mm. long, shorter than the corolla, white-stellate-tomentose and -plumose or densely woolly-villous on the outside, glandular, its rim 4-toothed, the teeth very short; corolla white, dusty-white, or whitish-brown to yellowish-brown, pink, rose-colored, rose-magenta, red, violet, purple, or blue, glabrous, its tube 1.6 mm. long, the lobes 0.4 mm. long, with lines of yellow glands; stamens 3 mm.

long, long-exserted; anthers yellow-brown, densely glandulose; pistil long-exserted; style 4 mm. long; stigma somewhat incrassate; ovary villous, glandulose; young infructescence erect, green; fruit small, globose, green when immature, blue or dark-blue to blue-black, pink, red, blood-red, violet, purple, or black when ripe, sometimes white [Gjellerup 698].

The type of this interesting species was collected by Hugh Cuming (no. 911) in Albay province, Luzon, Philippine Islands, with specimens of the type collection cited by Schauer (1847) in the Berlin, Kunth, and Lucae herbaria. The type of C. candida was collected by Adolph Daniel Edward Elmer (no. 15124) at Irosin, Mount Bulusan, in the province of Sorsogon, Luzon, in November, 1915. The type of C. lagunensis was gathered by Maximo Ramos [Herb. Philip. Bur. Sci. 23798] at San Antonio, in the province of Laguna, Luzon, in October, 1915, and is deposited in the United States National Herbarium at Washington. It exhibits large coarsely toothed leaves and spreading-villous stems.

Callicarpa erioclona has been found by collectors growing along streams and forest streams, along the ocean strand, on wooded ridges bordering creeks, coral limestone seacliffs, streambanks, rocky or dry forested slopes, and the slopes of dry hills, at the edges of cliffs, in dry fertile soil, rainforests and dense rainforests, new and secondary forests, forested valleys, banana plantations, woods and forests, open forests, and open wet areas, at altitudes of 10 to 416 meters, but chiefly at low altitudes, flowering from March to December, and fruiting from April to December.

Herre describes it as "common everywhere" in the Palau Islands; Takamatsu calls it "common in dry places in open forests" on Yap. Pancho found it "in open waste places throughout the Philippines", and Glassman calls it "common" on Lele islet. Smitinand describes it as "common in evergreen jungles" and "common along edge of thicket near village" in Thailand, but Kanehira & Hatusima aver that it is "rare" in New Guinea. Vernacular names recorded for it are "alo-loy", "a tiptipinagut", "a-tiptipinagut", "balá-balának", "cagong", "dup", "ikabag", "kagong", "palis", "phlu yuan", "salingárau", "tambalabási", "tigao", "tígau", "tigoo", and "túbang-dalág". Of these I do not know which is the more generally employed.

The flowers are described as "red" on Janowsky 545, "pink" on Kostermans 2681, "violet" on Herb. Philip. Forest. Bur. 30005, "rose-colored" on Zwickey 14, "rose-magenta" on H. St. John 21502, "blue" on Herb. Philip. Bur. Sci. 46162, "yellowish-brown" on Herb. Philip. Bur. Sci. 49282, "whitish-brown" on Herb. Philip. Bur. Sci. 49314, "purple" on Glassman 2710 and Smitinand 1451, "dusty-white" on Castro & Melegrito 1714, and "white" on Agama 1049, Gjellerup 698, Guerrero 7, Hallier 4027a, Pancho 1385, Peekel 63, and Vanoverbergh 17598.

Miquel (1856) notes "Tomento dimorpho insignis". Bakhuizen van

den Brink (1921) elaborates this as follows: "Young parts, lower side of leaves and inflorescence with dense hairs of two sorts, viz. partly very densely with a white appressed tomentum, partly long brownish-plumose". Pancho, St. John, and Zwickey refer to the fruits as "berries", but they are drupes.

Guerrero reports that this plant is medicinal, and that on Mindanao the leaves are used for curing stomach-ache by applying them externally as a plaster. Zwickey reports the fruit edible and that the leaves, mixed with coconut oil, are used as an application on wounds. Fox tells us that the pounded leaves are mixed with pounded fruit of red pepper and the stems of "biga" and employed as a fish-poison on Palawan; Wenzel also reports the leaves used to stupify fish on Leyte and Mindanao. On Luzon, according to Ramirez, the leaves are pounded to a powder in a mortar, mixed with ashes, and then strewn on the water of streams. The leaves are employed as a fish-poison also on the Palau Islands according to Kanehira, while on Ponape, according to Burton, this is their finest available fish-poison, somewhat like Derris in its action. Lam (1924) says "die zerissenen Blätter werden zum Betäuben von Fischen angewendet."

This same author, in his 1919 work, cites Peekel 734 from New Ireland under what he calls C. cana var. typica H. J. Lam with a note "(cf. C. erioclona var. γ)", this variety being var. repanda. He distinguishes his varieties of C. erioclona as follows:

Var. typica H. J. Lam -- "folia membranacea vel subchartacea lanceolata vel late lanceolata, utrinque acuminata, margine praeter basin, interdum irregulariter, denticulata; nervis secundariis utrinque 7--12; 9--26 cm. longa, 3 1/2 -- 9 1/2 cm. lata; petiolo 1--2 1/2 cm. longo; cymi 2 1/2 -- 4 cm. longi, 2 1/2 -- 4 cm. lati, pedunculo 0.7--1.5 cm. longo, interdum quam petiolo longiore." He cites Forsten s.n. (Le--908.266-1221) from Celebes; Celestino 7337, "Com. d. l. fl. for. d. Fil. no. 843", Cuming 911, and Elmer 11190 from the Philippine Islands, Gjellerup 698 from Dutch New Guinea, and Parkinson 191 from New Britain.

Var. latifolia H. J. Lam -- "folia chartacea, ovata vel oblongo-ovata, basi cuneata, plerumque subrotundata, abrupte attenuata, apice acuminata, margine, praeter basin, grosse dentata, dentibus sinibus profundis, nervis utrinque 8, 7--17 cm. longa, 4 1/2 -- 11 1/2 cm. lata, petiolo 0.7--3.2 cm. longo." Here he cites DeVriese s.n. (Le--908.267-1091, Le--908.267-1092), "Herb. var. botan." s. n. (Le--908.265-1104, Le--908.265-1110, Le--908.265-1146), and Forbes 1355 from Java. I regard this taxon to be C. inaequalis Teijsm. & Binn., which see.

Var. repanda (Warb.) H. J. Lam -- "folia subchartacea, vel membranacea, late ovata, basi apiceque subabrupte acuminata, margine denticulata, nervis utrinque 10, 22--26 cm. longa, 12--13 cm. lata, petiolo 2--3 1/2 cm. longo, crasso (0.4 cm.); cymi majores 5 cm. longi, 9 cm. lati, pedunculo 1 1/2 -- 2 cm. long." Here he cites Dahl s.n. from New Britain and Peekel 63 from New Ireland.

He comments that "The species is well characterized by its often plumose tomentum, and especially by the form of the leaves and the often denticulate or dentate margins. Its affinity is with C. cana and C. paucinervia." He gives its general distribution as Java, Celebes, Philippine Islands, New Guinea, New Britain, and New Ireland.

Bakhuizen van den Brink (1921) proposes C. erioclona var. typica f. rivularis (Merr.) Bakh. and C. erioclona var. subalbida (Elm.) Bakh., but I regard both these taxa as distinct species, C. rivularis Merr. and C. subalbida Elm., which see. The "New Britain" reference given by this same author under C. bicolor A. L. Juss. doubtless refers to C. erioclona instead. It is interesting to note in this connection that Bentham & Mueller (1870) say "C. bicolor Juss.....and C. erioclona Schau.....appear to me both to be precisely the common Archipelago form of C. cana" [= C. candicans (Burm. f.) Hochr.].

It is also worth noting here that the original citations for C. repanda is often given as "K. Schum. et Warb., Fl. Neu-Pomm. 144", as, for instance, by Lam (1919). Bakhuizen van den Brink (1921) cites the original publication of C. cana var. repanda as "1890" instead of 1891 and the Warburg (1891) reference in the bibliography above as "1890", while Kanehira & Hatusima (1942) cite Lauterb., Engl. Bot. Jahrb. 59: 89 as "1925" instead of 1924.

Schauer (1847) and Miquel (1856) cite a Lesson s.n. from New Guinea, not as yet seen by me; Vidal (1886) cites his nos. 494 from Bataan and 843 from Camarines Sur, Luzon; and Lam (1924) notes that the branches on Peckel 63, from New Ireland, are "braun-oder schwarz-filzig". He (1924) and Kanehira & Hatusima (1942) give the general distribution of the species as Java, Celebes, New Guinea, and the Bismark Archipelago. Bakhuizen (1924) gives it as the Philippines, Celebes, New Guinea, New Britain, and New Ireland.

The Stockholm specimen of Herb. Philip. Bur. Sci. 30258 has been cited as C. candicans, but the University of California specimen of the same number is most definitely C. erioclona!

Material has been misidentified and distributed in herbaria under the names C. bicolor A. L. Juss., C. cana L., C. candicans (Burm. f.) Hochr., and C. tomentosa Lam. On the other hand, the Glassman 2710, Kanehira 1006, 1242, & 1301, P. Nelson 531, and Takamatsu 1824, distributed as C. erioclona, are actually var. paucinervia (Merr.) Moldenke, while M. S. Clemens 16799, Haenke 81, Loher 12347, Pierre 5227, and Ramos & Edaffo s.n. [Herb. Philip. Bur. Sci. 47121] are C. plumosa Quisumb. & Merr.

In all, 155 herbarium specimens, including type material of most of the names involved, and one mounted photograph have been examined by me.

Citations: THAILAND: Smitinand 1355 [Herb. Roy. Forest. Dept.

7311] (Ss), 1451 [Herb. Roy. Forest. Dept. 7799] (Z). INDOCHINA: Annam: Pierre s.n. [9/1865] (N). Cambodia: Bejaud 447 (N). Cochinchina: Pierre s.n. [9/1865] (B). WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Alabat: Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 48314] (Ca--321758). Bohol: R. C. MacGregor s.n. [Herb. Philip. Bur. Sci. 124] (N); M. Ramos s.n. [Herb. Philip. Bur. Sci. 42770] (Bz--17579, Ca--242442), s.n. [Herb. Philip. Bur. Sci. 42853] (Ca--242443). Catanduanes: Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 75120] (Ca--449190, N), s.n. [Herb. Philip. Bur. Sci. 75628] (Ca--449228). Coron: G. Lopez s.n. [Herb. Philip. Bur. Sci. 41342] (Bz--17271); M. Ramos s.n. [Herb. Philip. Bur. Sci. 41148] (Bz--17274). Culion: E. D. Merrill 441 (N). Jolo: Q. Ruiz s.n. [Herb. Philip. Forest. Bur. 30005] (Ca--291732). Leyte: Edaño s.n. [Herb. Philip. Bur. Sci. 41685] (Ca--239201); Elmer 7367 (Bz--17586, N); Kondo & Edaño 112 [Philip. Nat. Herb. 36778] (Bi); Wenzel 1328 (Oa), 1479 (N, Oa), s.n. [June 21, 1915] (Oa), s.n. [June 24, 1915] (Oa). Luzon: Adduru 150 (Gg--31993); Ahern's collector s.n. [Herb. Philip. Forest. Bur. 1484] (Bz--17264, N), s.n. [Herb. Philip. Forest. Bur. 3300] (Vt); T. E. Borden s.n. [Herb. Philip. Forest. Bur. 1595] (N); Cuming 911 (M--isotype, N--isotype); Edaño s.n. [Herb. Philip. Bur. Sci. 38333] (Bz--17578), s.n. [Herb. Philip. Bur. Sci. 48678] (Bz--17575, Ca--322081, S); Elmer 6647 (N), 8064 (Bz--17589, N), 15082 (Bz--17592, Ca--272334, N, S, Ut--67343), 15124 (Bz--17269, Ca--272868, N, S, Ut--66086), 17598 (Bz--17590, Ca--271432, N, Ut--67245, V, Z--photo), 18086 (Bz--17460, Ca--270774, N, Ut--67298); F. C. Gates 6599 (Ka--60447, Ka--66826), 7769 (Mi), 7787 (Ka--62320); Haenke 579 (N); Holman s.n. [Sept. 24, 1910] (Du--66845); R. C. MacGregor s.n. [Herb. Philip. Bur. Sci. 22910] (Bi, Bi); E. D. Merrill 2536 (N); Pancho 1385 (Ba); I. Ramirez s.n. [Herb. Philip. Forest. Bur. 29915] (Ca--268045); M. Ramos 1901 (Bz--17591), s.n. [Herb. Philip. Bur. Sci. 1039] (Bz--17588, N), s.n. [Herb. Philip. Bur. Sci. 23798] (W--1239180), s.n. [Herb. Philip. Bur. Sci. 32719] (Bz--17593), s.n. [Herb. Philip. Bur. Sci. 33179] (N); Reillo s.n. [Herb. Philip. Bur. Sci. 19265] (N); Robinson & Merritt s.n. [Herb. Philip. Bur. Sci. 6124] (N); F. L. Stevens 23 (Ur), 544 (Ur); Tamesis s.n. [Herb. Philip. Forest. Bur. 15363] (Bi); Vanoverbergh 17598 (Ca--324465); H. N. Whitford 487 (N). Mindanao: M. K. Clemens 271 (Bz--17272); Elmer 11190 (Bi, Bz--17587, N, Vt); Elumir s.n. [Herb. Philip. Forest. Bur. 28181] (Bz--17266); Guerrero 7 [Herb. Philip. Forest. Bur. 30367] (Bz--17267, Ca--321041); H. Hallier 4027a (Ca--918517); Kanehira 2517 (N); Quadras 335 (N); Quezon 1 [Herb. Philip. Forest. Bur. 30258] (Ca--320973); Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 49013]

(Ca--324037), s.n. [Herb. Philip. Bur. Sci. 49282] (Bz--17573, Ca--324441), s.n. [Herb. Philip. Bur. Sci. 49314] (Bz--17574, Ca--324395); Ramos & Pascasio s.n. [Herb. Philip. Bur. Sci. 34697] (Ca--215160); Wenzel 3389 (Bz--17275, Ca--354975, N); R. S. Williams 2964 (N, N); Zwickey 14 (N). Mindoro: Bermejós s.n. [Herb. Philip. Bur. Sci. 1534] (N); M. Ramos s.n. [Herb. Philip. Bur. Sci. 40933] (Bz--17577). Negros: Usteri s.n. [25/I/03] (N). Palawan: Fénix s.n. [Herb. Philip. Bur. Sci. 15568] (Bz--17270); R. B. Fox 106 [Philip. Nat. Herb. 13401] (Mi). Panay: Edaño s.n. [Herb. Philip. Bur. Sci. 46162] (Bz--17268, Ca--309637, N); Espinosa s.n. [Herb. Philip. Forest. Bur. 30146] (Ca--291924); Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 31537] (Bz--17265, N). Island undetermined: Herb. Philip. Forest. Bur. 9761 [Palis] (Bt, N); Wilkes s.n. (T). MARIANA ISLANDS: Guam: Glassman 81 (Ur). Tinian: Schubel 28 (Ur). PALAU ISLANDS: Angaur: H. St. John 21502 (Bi, Ca--902597). Koror: Herre 17 (Bi, N). Ponape: R. E. Burton 129 (Bi); Hosokawa 58381 (Bi, Mi); Kariyone 31 (Ca--287231); Takamatsu 796 (Bi, Ca--805723). Yap: Takamatsu 1824, in part (Ca--805722). INDONESIA: GREATER SUNDA ISLANDS: Banguay: Castro & Melegrito 1573 [field no. 68] (Ca--241684), 1714 [field no. 209] (Ca--241306). Celebes: Bish 68 (Bz--17281); C. B. Robinson 2465 (Bz--17282). Java: Zollinger 35.7062 (S). Miangas: H. J. Lam 3372, in part (Bz--17290, Bz, N). British North Borneo: Agama 1049 [351] (Ph). MICRONESIA: CAROLINE ISLANDS: Corol: Kanehira 79 (N). MELANESIA: NEW GUINEA: Dutch New Guinea: Aet 196 (Bz--72947); Bruyn 280 (Bz--17262); Janowsky 545 (Bz--17571, Bz--17572); Kanehira & Hatusima 13211 (Bz--17583); Kostermans 2681 (Bz--26604, Bz). Mansinam Island: Teijsmann 7788 (Bz--17584, Bz--17585). Northeastern New Guinea: Brass 29352 (W--2390942). BISMARK ARCHIPELAGO: New Britain: Commerson s.n. [Port Praslin] (P); Waterhouse 290 [Herb. Yale School Forest. 27601] (N).

CALLICARPA ERIOCLONA f. GLABRESCENS Moldenke, Résumé Suppl. 4: 9, nom. nud. June 5, 1962; Phytologia 8: 385. December 10, 1962. Bibliography: Moldenke, Résumé Suppl. 4: 9. 1962; Moldenke, Phytologia 8: 385. 1962; Hocking, Excerpt. Bot. A.6: 455. 1963; Moldenke, Biol. Abstr. 42: 1517. 1963; Moldenke, Phytologia 14: 117, 118, & 122. 1966.

This form differs from the typical form of the species in having the mature leaf-blades varying from rather sparsely to very sparsely stellate-pubescent or even glabrescent and resinous-punctate on the lower surface.

The type of the form was collected by Takahide Hosokawa (no. 8398) at Tadiu, Truk, Caroline Islands, on August 11, 1936, and is deposited in the herbarium of the Bernice P. Bishop Museum in Honolulu.

Collectors describe this plant as a shrub, flowering in January and August, known as "ligatar" and "ligatari", growing mostly at the seashore. It is used in the treatment of boils on the arms by the natives of the Caroline Islands, and the ground-up young leaves are placed in the mouth to serve as an emetic. Material has been misidentified and distributed in herbaria under the name C. cana L.

In all, 3 herbarium specimens, including the type, have been examined by me.

Citations: MICRONESIA: CAROLINE ISLANDS: Param: Takamatsu 323 (Bi). Truk: Hosokawa 8398 (Bi--type). CULTIVATED: Caroline Islands: Abbott & Bates 45 (Bi).

CALLICARPA ERIOCLONA var. PAUCINERVIA (Merr.) Moldenke, *Phytologia* 8: 57. 1961.

Synonymy: Callicarpa paucinervia Merr., *Philip. Journ. Sci. Bot.* 9: 134--135. 1914.

Bibliography: E. D. Merr., *Philip. Journ. Sci. Bot.* 9: 134--135. 1914; Koidz., *Bot. Mag. Tokyo* 32: 136. 1918; H. J. Lam, *Verbenac. Malay. Arch.* 49, 76, 78, & 362. 1919; Prain, *Ind. Kew. Suppl.* 5: 43. 1921; Bakh., *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 19. 1921; E. D. Merr., *Enum. Philip. Flow. Pl.* 3: 389. 1923; Kanehira, *Fl. Micron.* 457. 1933; Moldenke, *Known Geogr. Distrib. Verbenac.*, ed. 1, 63 & 87 (1942) and ed. 2, 142 & 177. 1949; Moldenke, *Phytologia* 3: 296 (1950) and 8: 57. 1961; Hocking, *Excerpt. Bot. A.5:* 45. 1962; Moldenke, *Biol. Abstr.* 37: 1062. 1962; Moldenke, *Résumé Suppl.* 3: 22 & 30 (1962) and 4: 8 & 9. 1962; Van Steenis, *Fl. Males. Bull.* 18: 1069. 1963; Moldenke, *Résumé Suppl.* 12: 8. 1965; Moldenke, *Phytologia* 14: 48, 117--120, & 122. 1966.

This variety differs from the typical form of the species in its smaller leaves, which usually have only 5 pairs of secondaries and are only up to 11 cm. long and 5 cm. wide, more rounded-obtuse at the apex, and with much denser and yellowish pubescence on the lower surface, which is only stellate, not plumose.

The plant is described as an "herb" or shrub, erect, woody, branching, 0.9--3 m. tall; branchlets densely yellowish-stellate-hairy, eventually glabrescent; leaves decussate-opposite; petioles 1--1.2 cm. long, densely yellowish-stellate-hairy, eventually glabrescent; leaf-blades chartaceous or subcoriaceous, ovate or oblong-ovate, 9--11 cm. long, 4--5.5 cm. wide, rounded-obtuse or somewhat acuminate at the apex, crenulate along the margins except at the entire base, abruptly attenuate at the base, glabrous above when mature or with stellate hairs on the midrib, densely yellowish- or yellow-brown-tomentose and glandulose beneath; secondaries usually 5 pairs; venation intricate beneath, very short-puberulent; cymes small, about 2 cm. long and wide, densely yellowish-stellate-hairy, eventually glabrescent; peduncles 7 mm. long or less; flowers small; calyx 1.5 mm. long, densely stellate-hairy, the rim truncate or 4-toothed; corolla lavender, purplish-lavender, or lilac to purple, 3 mm. long, glabrous, the lobes 1.3 mm. long; stamens exerted; anthers glandulose; fruit dark-blue or

dark-purple to purple-black or black, 2 mm. wide, glabrous.

The type of the variety was collected in rocky places at Asan, Guam, in January, 1912, and is Guam Exp. Sta. 292. Collectors have found the plant growing on or at the edge of cliffs, on pure coral outcrops, along the strand, under coconut trees, in sandy or clay soil, and in thickets at low altitudes, usually from sea-level to 33 m. altitude, flowering in January, April, May, and July to September, fruiting in January, April, and June to September. The flowers are described as "lavender" on R. Moran 4525, "lilac" on R. C. Cowan s.n., "purplish-lavender" on E. H. Bryan 1218, and "purple" on Rodin 599 and Wong 135. The fruits are described as "berries" by E. H. Bryan, but are actually drupes. Takamatsu describes the plant as "common in dry places in open forests" on Yap and "rather common in dry fields" on Babelthuap.

Vernacular names recorded for the plant are "akyn", "garawow", "hamlat", "hatar", and "memangmah". Kondo s.n. [June 7, 1952] has Ipomoea congesta twining on it. In regard to P. K. Nelson 531 Merrill says "prob. = cana L.", but with this suggestion I do not agree. This collection is labeled as actually being a topotype of C. paucinervia.

Merrill (1914) says of the plant here under discussion "A species much resembling the Philippine Callicarpa erioclona Schauer, and probably as closely allied to that species as to any other. It differs notably in its much fewer-nerved leaves." Lam (1919) notes that "This species has an affinity with C. erioclona, but the points of difference are the number of nerve-pairs, and the stellate, never plumose, texture." Bakhuizen van den Brink (1921) included C. paucinervia in the synonymy of C. bicolor A. L. Juss., but with this disposition of it I cannot agree.

Material has been misidentified and distributed in herbaria under the names C. cana L., C. candicans (Burm. f.) Hochr., and C. erioclona Schau. In all, 43 herbarium specimens have been examined by me.

Citations: WESTERN PACIFIC ISLANDS: MARIANA ISLANDS: Aguijan: Kondo VI (Bi), s.n. [June 7, 1952] (Bi). Guam: E. H. Bryan 1142 (Bi), 1218 (Bi, Bi, Ca--995253); H. M. Mayo s.n. [Oct. 24, 1947] (Bi); G. C. Moore 339 (Ca--745141); R. Moran 4525 (Bi, Ca--51979, N, N); P. K. Nelson 531 (Bi, Bi, N); Rodin 599 (Ca--789476); O. H. Swezey s.n. [June 3, 1936] (Bi), s.n. [Machanao, June 30, 1936] (Bi). Rota: Kondo s.n. [June 25, 1952] (Bi). Saipan: Kanehira 1006 (Bi, N). Tinian: R. C. Cowan s.n. [April 3, 1945] (Bi). Island undetermined: Haenke s.n. [Anno 1792] (Bi); Hosokawa 7751 (Bi). PALAU ISLANDS: Babelthuap: Takamatsu 1229 (Bi), 1355 (Bi). Ulithi: Lessa 24 (Bi). Yap: Hosokawa 8857 (Bi, Mi); Kanehira 1242 (N); Takamatsu 1824 (Bi); C. C. Y. Wong 326 (Bi). MICRONESIA: CAROLINE ISLANDS: Kusaie: Hosokawa 6190 (Bi); Kanehira 1301 (N). Lele: S. F. Glassman 2710 (Bi, W). Truk: Hosokawa 8348 (Bi); C.

C. Y. Wong 135 (Bi). Island undetermined: Maddren s.n. [1899] (Du, Du). MELANESIA: BISMARCK ARCHIPELAGO: Mussau: Køie & Olsen 1283 (Cp). Island undetermined: Dissing, Køie, & Olsen 2556 (Cp, Z).

CALLICARPA ERYTHROSTICTA Merr. & Chun, *Sunyatsenia* 5: 178--179, pl. 27. 1940.

Bibliography: Merr. & Chun, *Sunyatsenia* 5: 178--179, pl. 27. 1940; Moldenke, *Phytologia* 4: 75. 1952; Moldenke, *Résumé* 174 & 443. 1959.

Illustrations: Merr. & Chun, *Sunyatsenia* 5: pl. 27. 1940.

Erect shrub, 0.5--2 m. tall, subglabrous; branches terete, glabrous; ultimate branchlets slender, scarcely 1 mm. thick, shortly stellate-pubescent downwards with scattered hairs; internodes 2--3 cm. long; petioles 2--4 mm. long, shortly stellate-pubescent, glabrescent; leaf-blades chartaceous, lanceolate or broadly lanceolate to oblong-lanceolate, 4--8 cm. long, 1--2.3 cm. wide, subcaudate-acuminate at the apex, entire along the margins toward the base, distantly serrate or serrulate toward the apex, olivaceous and shiny-glabrous above or obscurely short-pubescent and glandulose on the midrib, somewhat paler and conspicuously red-glandular beneath, obscurely and shortly stellate-pubescent with scattered hairs along the midrib and larger veins; secondaries 5--8 per side, slender, distinct and elevated beneath, curvate, arcuate-anastomosing; veinlet reticulation loose, distinct; cymes axillary, 5--10 mm. long, few-flowered, more or less stellate-pubescent and glandulose; corolla pale-pink; fruiting-calyx persistent, disciform, 2 mm. wide, red-glandulose on the outer surface, its rim truncate; fruit globose, 4 mm. wide, glabrous.

The type of this species was collected by F. C. How (no. 72515) in a forest at Chang-Sha village, at an altitude of 1400 feet, Po-Ting district, Ma-Tiu Chung, Hainan Island, in anthesis on May 20, 1935. The authors cite also How 71998 from Hainan and comment "A striking differential character of this species, which manifestly belongs in the group with *Callicarpa dichotoma* (Lour.) Raeusch., are the numerous, shining, red glands of the lower surfaces of the leaves, and to a less degree on the midrib above, on the petioles, and on the inflorescences."

In all, 3 herbarium specimens and 2 mounted photographs of the type collection have been examined by me.

Citations: CHINESE COASTAL ISLANDS: Hainan: F. C. How 72515 (Bi--isotype, Bz--17596--isotype, N--isotype, N--photo of isotype, Z--photo of isotype).

CALLICARPA FASCICULIFLORA Merr., *Philip. Journ. Sci. Bot.* 17: 313--314. 1920.

Bibliography: E. D. Merr., *Philip. Journ. Sci. Bot.* 17: 313--314. 1920; E. D. Merr., *Enum. Philip. Flow. Pl.* 3: 384. 1923; A. W. Hill, *Ind. Kew. Suppl.* 7: 36. 1929; Moldenke, *Known Geogr. Dis-*

trib. Verbenac., ed. 1, 62 & 86 (1942) and ed. 2, 140 & 177. 1949; Moldenke, Résumé 182 & 444. 1959.

A shrub or small tree, the younger parts villous and stellate-tomentose, especially the branchlets and petioles; petioles 1--2 cm. long; leaf-blades thin-chartaceous, oblong to elliptic, 13--24 cm. long, 6--12 cm. wide, rather slenderly acuminate at the apex, entire or very obscurely and distantly toothed along the margins, acute at the base, olivaceous and sparingly stellate-pubescent on the midrib, secondaries, and veinlet reticulation; secondaries about 10 per side, distinct; inflorescence mostly borne in the axils of fallen leaves; flowers fascicled, sessile or short-pedicellate, the fascicles rather dense, 1--1.5 cm. wide; bracts narrow-oblong, 4--5 mm. long, stellate-pubescent; bractlets filiform, 3 mm. long; calyx densely villous or stellate-tomentose, its tube cylindric, 3 mm. long, the teeth 4, lanceolate, 1.5--2 mm. long, acuminate; corolla pale-violet, its tube 4 mm. long, externally somewhat pubescent, the lobes 4, oblong, about 2 mm. long, rounded at the apex; stamens exserted; anthers 3 mm. long; fruit globose, about 2.5 mm. wide, glabrous, enclosed by the fruiting-calyx.

The type of this species was collected by Maximo Ramos and J. Pascasio [Herb. Philip. Bur. Sci. 35123] in open forests at low altitudes, Bucas Grande, Philippine Islands, on June 9, 1919, and was deposited in the herbarium of the Bureau of Science at Manila, but is now destroyed. Merrill (1920) says "This species is readily distinguished from its congeners by its fascicled, sessile or subsessile flowers, this type of inflorescence being unknown to me in any other species of the genus."

Nothing is known to me of this taxon except what is stated in its bibliography.

CALLICARPA FERRUGINEA Sw., Prodr. 31. 1788.

Additional & emended synonymy: Callicarpa foliis lato-lanceolatis serratis subtus scabriusculis, cymis terminalibus axillaribusque Sw. apud Willd., Linn. Sp. Pl. 1: 620, in syn. 1797. Callicarpa maestrensis Urb. in Fedde, Repert. Spec. Nov. 18: 119--120. 1922.

Bibliography: Sw., Prodr. 31. 1788; J. F. Gmel., Linn. Syst. Nat., ed. 13, 2: 246. 1791; Willd., Linn. Sp. Pl. 1: 620. 1797; Sw., Fl. Ind. Occ. 1: 250. 1797; Rausch., Nom. Bot. 37. 1797; Pers., Syn. Pl. 1: 133. 1805; W. T. Ait., Hort. Kew., ed. 2, 1: 247. 1810; Poir. in Lam., Encycl. Méth. Suppl. 2: 32--33. 1811; Roem. & Schult., Linn. Syst. Veg. 3: 95. 1818; Steud., Nom. Bot., ed. 1, 137. 1821; Spreng. in L., Syst. Veg., ed. 16, 1: 420 (1825) and 5: 126. 1828; D. Dietr., Syn. Pl. 1: 429. 1839; Steud., Nom. Bot., ed. 2, 257. 1840; Pers., Sp. Pl. 1: 343. 1842; Walp., Repert. Bot., ed. 2, 257. 1840; Pers., Sp. Pl. 1: 343. 1842; Walp., Repert. Bot., ed. 2, 257. 1840; Jacques & Héring, Man. Gén. Pl. Arb. & Arbust. 3: 4: 131. 1845; Jacques & Héring, Man. Gén. Pl. Arb. & Arbust. 3: 503. 1845--1862; Schau. in A. DC., Prodr. 11: 646. 1847; Sagra, Hist. Cuba 2 (11): 144--145. 1850; Walp., Ann. Bot. 5: 709. 1860; Griseb., Fl. Brit. W. Ind. 499. 1861; Griseb., Cat. Pl. Cub. 216.

1866; Sauvalle, Fl. Cub. 113. 1868; O. A. Reade, Fl. Bermud. 62. 1883; Lefroy, Bull. U. S. Nat. Mus. 25: 97. 1884; W. B. Hemsl., Rep. Scient. Res. Voy. Challenger Bot. 1 (1): 128b. 1885; G. W. Johnson, Gard. Dict. 157. 1890; Fawcett, Prov. List Indig. Nat. Flow. Pl. Jamaica 30. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew. 1: 386. 1893; Briq., Bull. Herb. Boiss. 4: 345. 1896; Urbina, Cat. Pl. Mex. 281. 1897; Verrill, Trans. Conn. Acad. Arts & Sci. 11 (2): 576 & 656. 1902; Millsp., Field Columb. Mus. Publ. Bot. 2: 180. 1906; H. B. Small, Bot. Bermud. 48--49. 1913; Urb. in Fedde, Repert. Spec. Nov. 18: 119--120 (1922) and 20: 345. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 37. 1929; Moldenke in Fedde, Repert. Spec. Nov. 39: 298, 300, & 308 (1936) and 40: 45, 54--57, 59, 73, 78, 117, 119--121, 123--126, & 128--131. 1936; Moldenke, Alph. List Common Vern. Names 12 & 26. 1939; Moldenke, Geogr. Distrib. Avicenn. 4, 6, & 35. 1939; Moldenke, Suppl. List Common Vern. Names 23. 1940; Moldenke, Prelim. Alph. List Invalid Names 12. 1940; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 24, 25, 71, & 86. 1942; Moldenke, Alph. List Invalid Names 10. 1942; Moldenke, Phytologia 2: 94. 1945; Moldenke, Alph. List Cit. 1: 3, 61, 75, 185, 187, 258, 259, 261, 262, 308, 310, & 319 (1946), 2: 529, 559, 565, & 647--651 (1948), 3: 664, 720, 722, 809, 833, & 929 (1949), and 4: 982, 1013, 1035, 1039, 1079, 1145, 1157, & 1206. 1949; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 42, 46, 157, & 177. 1949; Roig y Mesa, Dicc. Bot. 2: 389, 390, & 996. 1953; Alain in León & Alain, Fl. Cuba 4: 304 & 306. 1957; Moldenke, Résumé 50, 54, 213, 245, & 444. 1959; Moldenke, Résumé Suppl. 14: 6. 1966; J. A. Clark, Card. Ind. Gen. Sp. Pl. n.d.

Recent collectors describe this plant as a low shrub, 1.5--3 m. tall, with bluish-white corollas, large fruit-clusters, and the fruit round, red or magenta to purplish or purple, flowering in April and from July to October, fruiting in January and August. It has been collected in wet woods and in dense windswept cloud-forests, on wet banks of rivulets, and on the gravel of riverbeds, at altitudes of 1000 to 3950 feet. Webster describes it as "common in rather disturbed places on rocky banks covered with moist hardwoods" in Oriente. Hemsley (1885) calls it "a common West Indian species".

O. A. Reade (1883), Lefroy (1884), and H. B. Small (1913) all record C. ferruginea from Bermuda, but this is based on an obvious misidentification, as their descriptions plainly indicate. Their plant is C. americana L., the only species of the genus known from the Bermuda Islands. The common name, "turkey berry", which they record, therefore, belongs to C. americana and not to C. ferruginea.

Material of C. ferruginea has been misidentified and distributed in herbaria under the names C. apiculata Urb., C. fulva A. Rich., and C. purpurea A. L. Juss. On the other hand, the C. Wright 430 [1860] cited by Grisebach (1866) and distributed as C. ferruginea, is actually C. fulva. Acuña 12689 greatly resembles C. fulva A. Rich. León, Clément, & Nestor 5380 is a mixture with

C. wrightii Britton & P. Wils.

In all, 98 herbarium specimens, including type material of all the names involved, and 29 mounted photographs have been examined by me.

Additional & emended citations: CUBA: Oriente: Acuña 9868 (Es), 10208 (Es), 12689 (Es, W--1881246), 13327 (Es), 13861 (Es); Alain, Clément, & Chrysogone A.877 (N); Alain & López Figueiras 7162 (Bm), 7165 (Bm); Britton & Cowell 12755 (W--698410); Mrs. G. C. Bucher 59 (N); Clément 4377 (Ha, N); Ekman 14787 (N); León 10735 (Ha), 17245 (Ha, N), 21297 (Ha, N); León & Clément 20186 (Ha, N), 23128 [July 1947] (N); León, Clément, & Nestor 5380, in part (Ha), 5447 (Ha); León, Clément, & Roca 10164 (Ha); León & Victorin 20764 (Ha, N); Linden 2088 (P); López Figueiras 2191 (Z); Shafer 8075 (W--696470); G. L. Webster 4115 (Mi). JAMAICA: N. L. Britton 208 (F--200919, W--847441); W. Harris 5292 (Us, W--387712); Harris & Britton 10554 (F--243407); W. Hooker s.n. (P); McNab s.n. [Jamaica] (Ed); Perkins 1182 (F--559990); G. R. Proctor 10114 (N); Swartz s.n. [Jamaica] (Cp--isotype, Dc--isotype, Mi--photo of type, S--isotype); G. L. Webster 5608 (Mi, S).

CALLICARPA FLOCCOSA Urb. in Fedde, Repert. Spec. Nov. 20: 345--346. 1924.

Bibliography: Urb. in Fedde, Repert. Spec. Nov. 20: 345--346. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 36. 1929; Moldenke, in Fedde, Repert. Spec. Nov. 39: 303 (1936) and 40: 51--52, 119, & 123. 1936; Moldenke, Brief Course Syst. Bot. Lect. 9: 2. 1937; Moldenke, Geogr. Distrib. Avicenn. 4. 1939; Moldenke, Brief Course Syst. Bot., ed. 2, 48. 1939; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 24 & 86. 1942; Moldenke, Alph. List Cit. 1: 184. 1946; Moldenke, Brief Course Elem. Syst. Bot. 53. 1947; Moldenke, Known Geogr. Distrib. Verbenac., ed. 2, 42 & 177. 1949; Alain in León & Alain, Fl. Cuba 4: 305 & 309. 1957; Moldenke, Résumé 50 & 444. 1959.

This plant has been collected in anthesis in June and July. Material has been misidentified and distributed in herbaria as C. fulva A. Rich.

In all, 5 herbarium specimens, including the type, and 2 mounted photographs have been examined by me.

Additional citations: CUBA: Oriente: Clément, Alain, & Chrysogone 6698 (N, Z).

CALLICARPA FORMOSANA Rolfe, Journ. Bot. 20: 358--359. 1882.

Additional & emended synonymy: Callicarpa americana Blanco, Fl. Filip., ed. 1, 517. 1837 [not C. americana Hort., 1936, nor L., 1753, nor Lam., 1966, nor Lour., 1794, nor Roxb., 1945, nor Sessé & Moc., 1893, nor Willd., 1936]. Callicarpa attenuata Walp., Nov. Act. Acad. Nat. Cur. 19, suppl. 1: 384. 1843 [not C. attenuata Wall., 1829]. Callicarpa bicolor F. Vill. in Blanco,

Fl. Filip., ed. 3, Nov. App. 158. 1880 [not *C. bicolor* A. L. Juss., 1806, nor Schau., 1886]. *Callicarpa blancoi* Rolfe, Journ. Linn. Soc. Lond. Bot. 21: 315. 1884. *Callicarpa ovata* C. B. Robinson, Philip. Journ. Sci. Bot. 3: 215. 1908. *Callicarpa ningpoensis* Matsuda, Bot. Mag. Tokyo 27: 273. 1913. *Callicarpa formosiana* Rolfe apud Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 24, sphalm. 1921. *Callicarpa aspera* Hand.-Mazz., Anz. Akad. Wiss. Wien Math.-nat. 59: 110. 1922.

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Illustrations: Blanco, Fl. Filip. pl. 427bis [in color]. 1878-1880; T. Ito, Taiwan Shobukutu Dzusetu [Illustr. Formos. Pl.] pl. 601. 1927; Kanehira, Formos. Trees, ed. 2, fig. 599. 1936; Li, Woody Pl. Taiwan fig. 330. 1963.

Recent collectors describe this plant as a bush or shrub, a bushy or low tough shrub, half-twining shrub, tree or small tree, woody or semi-woody, slender, erect, deciduous, 1-5 m. tall, with yellowish scurfy pubescence; stems 1 or several from the same root-cluster or branched from near the base, to 8 cm. in diameter at breast height; pith large, white, tasteless; bark smooth, thin, yellowish-brown; old bark smooth and grayish, greenish and scabrid on the branchlets; wood tough, soft, greenish-white, odorless, tasteless; branchlets ascending, slender, abundantly or sparingly rebranched; young shoots and petioles ferrous-tomentose; leaves horizontal or descending, membranous or submembranous, conduplicate on the upper green or pale-green surface and yellow-green beneath, or dark-green above and paler beneath, the apex recurved, the upper sometimes narrow-elliptic, the uppermost sometimes lanceolate [cfr. f. angustata Moldenke]; inflorescence erect, axillary, with branched hairs; flowers erect, odorless or slightly scented or even with a bad odor, varying from pink, pinkish, pinkish-purple, or reddish to purplish, pale-purple, purple, "purple and red", purplish-violet, purplish-lavender, lilac, violet, or blue; stamens brown or yellow; fruit globose, shiny, at first green, later pink, reddish, red, or reddish-blue to blue, bluish, deep blue-indigo, violet, violaceous, purplish, purple, bluish-black, or black when ripe, erect.

Elmer and Matsuda mistakenly refer to the drupaceous fruits as "berries". The flowers are described as "green" on Tsui 119 [probably an error for "fruit"], "yellow" on Herb. Philip. Bur. Sci. 48766, "lilac" on Elmer 13441 and Glassman 476, "reddish" on Conklin 186, "pink or purplish" on Ching 1838, "purplish" on Kien-

holz 327 and Tsiang 2158, "purple and red" on Herb. Canton Chr. Coll. 12008 and Peng, Tak, & Kin 9, "pinkish-purple" on Chun 4874, "pale-purple" on E. D. Merrill 145, "purplish-lavender" on M. S. Clemens 17400, "purpureo-violascentes" on Owatari s.n., "purple" on Ying 347, "pinkish" on A. Henry 741 and Keng K.1021, "pink" on Au 905, Gressitt 721, Keng K.1052, Tsang 20496 & 20596, Tso 20315, and R. S. Williams 2577, "violet" on Herb. Philip. Bur. Sci. 44745, 45067, & 46383, and "blue" on Elmer 10985 and Tsui 211.

This plant has been found growing in wet or dry sandy soil, sandy gravel soil, silt or sandy silt, clay, ordinary highland soil, and dry poor more or less rocky soil of the upper cogonal region [in Mindanao], at lakesides and the edges of shady woods, in forests and primeval forests, shady woods, wooded ravines, thickets and Acacia thickets, betel-nut groves, rich woods, river thickets, grassy places, open fields, swamps, open valleys and open spaces at the sides of streams, parang and cogonal [Philippine Islands], lowland parang, and parang at the edge of cultivated land, on level land, river banks, parang slopes, hillslopes and rocky hillslopes, grassy or wooded hillsides, village commons, dry steep slopes, forested slopes, on small or grassy hills, rocky hillsides, or on hillsides among few scattered trees, as well as long roadsides and open roadsides, creeks and streamsides, and mountain roads, at altitudes of 4 to 2333 meters, flowering in every month of the year, and fruiting in February and May to December. Merrill (1926) points out that the seeds are disseminated by birds.

Sasaki s.n. [Herb. Govt. Formosa 21435] has its leaves rather small and narrow, Mori s.n. [August 10, 1936] has the uppermost leaves lanceolate, while Lau 96 has the upper leaves narrow-elliptic. These collections may represent f. angustata Moldenke or var. longifolia Suzuki. Elmer 22211 is a small-leaved form.

Lau describes C. formosana as fairly common or even abundant on Hainan Island, Tsang reports it as fairly common or abundant in Kwangtung, and Wilson describes it as common or abundant on Formosa. Bailey (1935) informs us that it is offered to the horticultural trade by the Taihoku Botanic Garden in Taihoku, Formosa. Lizardo reports that in the Philippines the leaves and twigs are pounded and used as a fish poison; Castillo, Juliano, and Buen also say that it is used as a fish poison, while Merrill states that it is employed to "stupify fish". Chung, Peng, Tak, & Kin report that it is employed in Chinese native medicine.

Vernacular names recorded for this plant are numerous, including "anadhiu", "anoyop", "anoyot", "atólba", "buraun", "chho-khng-á", "chim mei ip lo hai ngan", "for chai tsai", "horai-murasaki", "hōrai-murasaki", "hōrai-murasaki", "kabahaboha", "koodi-itu", "ku kai t'sz" [=ancient mustard seed], "lo hai ngan", "lo hai ngan muk", "lo hai ngan shue", "mfig-chiong-kun", "nan yang", "palis", "papalsis", "pe'h-chho-khng-á", "sai hong

hun", "sai ip un mat" [=small leaf origin close], "shan-puchiang", "sigbat-ta-caran", "tai-teng-hong", "tambalabás", "tambalasi", "tíagau", "tigau", "tígau", "tígau-tígau", "tigbabási", "timbabási", "ts'u-k'ang", "tubang dalag", "tubang-dalag", "túbang-dalág", and "tubaybási". Of these, I do not know which is the more generally used -- probably this depends on the locality.

M. S. Clemens 5881 & 7212 are infested with a black fungus which is probably the Uredo callicarpae Petch recorded by Arthur & Cummins (1936) as infesting this species.

It should be noted here that the C. attenuata of Wallich, referred to in the synonymy above, is actually a synonym of C. longifolia Lam.; the C. bicolor of Jussieu is a valid species, while that attributed to Schauer is C. candicans (Burm. f.) Hochr.; and the C. americana of Linnaeus is a valid species, while that attributed to "Hort." is C. longifolia Lam., that attributed to Lamarck, to Roxburgh, and to Willdenow is C. americana L., that attributed to Loureiro is C. candicans (Burm. f.) Hochr., and that of Sessé & Mociffo is C. pringlei Briq.

Bakhuizen van den Brink (1921) reduces C. formosana to synonymy under C. pedunculata R. Br., a species to which it is admittedly very closely related. Li (1963) reduces C. formosana f. albiflora Yamamoto and var. longifolia Suzuki to synonymy under typical C. formosana, but I feel that they may be worthy of nomenclatural recognition.

Blanco's original (1837) description of his Callicarpa americana is as follows: "Callicarpa de America. Tronco derecho, con las ramas borrosas. Hojas opuestas, lanceoladas, aserradas y tomentosas por debajo. Peciolos cortos. Flores axilares en umbela ahorquillada, que se subdivide muchas veces. Cal. pequeño de figura de campana, con cuatro angulos apenas notables, y otros tantos dientes pequeños. Cor. apenas boquiabierta, de figura de campana, en cuatro partes redondeadas: una á un lado y tres al otro. Estam. cuatro, fijos en la base de la corola, casi iguales en altura, pero la insercion de los dos, mas alta que la de los otros. Filam. dos veces mas largos que la corola, y con direccion varia. Ant. larguitas, todas fertiles. Germen de figura de trompo. Estilo mas largo que los estambres. Estigma con dos labios. Baya con cuatro huesecillos. = Es un arbolito conocido, de la altura de cuatro ó cinco varas. Las flores son pequeñas y encarnadas. Las hojas tienen un color algo fastidioso, y mezcladas estas con los pimientos chiquitos, ó solas y estregadas dentro del agua con las manos, emborrachan al pescado, y de ahí le viene el nombre que le dan los indios: da fruto en Jul. *T, Palis, Tubang dalag."

Rolfe's original description (1882) of C. formosana reads: "Branches becoming glabrate with age, but when young, as well as the under side of the leaves, the cymes, pedicels, and calyx,

covered with a pale brown tomentum of stellate hairs. Leaves elliptical, acute or shortly acuminate, serrulate or denticulate, base rounded; 2 — 3 1/2 in. long, 1 1/2 — 2 1/2 in. broad; dark brown, sparingly pubescent above, slightly scabrid with age; veins alternate, in about five pairs; petiole 3—5 lin. long. Cymes 5 times branched, dense flowered, 4—5 times longer than petiole. Pedicels 1/2 lin. long. Calyx campanulate, scarcely 1/2 lin. long, segments minute. Corolla 1 lin. long, lobes rounded, shorter than tube. Stamens exserted 1 lin., anthers elliptical, notched at each end. Style equalling stamens. Stigma capitate. Fruit globose, scarcely 1 lin. diameter. — Tamsui, Oldham, Nos. 388, 389; Watters, Nos. 23, 82. At the foot of hills on S.W. side of Formosa, Wilford, No. 493. Also from Gregory and Swinhoe. Apparently endemic. The native name given by Mr. Watters is 'Ts'u K'ang'; he says 'The buds of the leaves and flowers are pounded and made into poultices for cuts and bruises.'"

Lam's description (1919) of *C. ovata* is: "A shrub, 2 M. high; branchlets, cymes and petioles densely ferruginous stellate-tomentose, glabrescent; leaves opposite, membranous, ovate-elliptic; base subrotundate, apex acutely or obtusely acuminate; margins serrate except near the base; upper side little, lower one densier stellate-hairy; nerves 8—10; 5 1/2 — 10 cm. long, 3—6 cm. broad; petioles 0.3—0.5 cm.; cymes 1 1/2 — 2 cm.; peduncles 0.5—1.1 cm.; pedicels 0.2—0.4 cm.; bracts 0.7—0.8 cm.; calyx with 4 somewhat unequal lobes; 0.09—0.12 cm. long; corolla pink, 0.23—0.25 cm.; tube 0.12—0.16 cm.; lobes 4, 0.1 cm. broad; stamens 4, 0.27—0.3 cm. long; anthers 0.07 cm.; style 0.5—0.6 cm., with 4-lobed stigma; ovary globose, 0.05 cm.; drupe glabrous, 0.25 cm. Distribution: Mindanao. We did not see any specimen of this species, but the description gives rise to the supposition that it may be identical with *C. Blancoi*." The type is R. S. Williams 2577 from above Darong, in the province of Davao, southeastern Mindanao, collected at an altitude of 600 feet on April 9, 1905.

Matsuda's original description (1913) of *C. ningpoensis* is as follows: "Shrub; branches, petioles and inflorescence thickly covered with stellate hairs; leaves opposite, petiole 7—10 mm. long, lamina oval-oblong, acuminate, subacute or rounded at base, membranaceous, or subcoriaceous in the fruiting specimen, hispidulous above, sprinkled with stellate hairs underneath and often glandular-dotted, somewhat thick haired on the nerves, serrulate, primary nerves about 5 on each side; flowering peduncle subequal to the petiole, cymes dichotomous, about 4 cm. across when in flower, becoming much larger in the fruiting specimen, flowers numerous; calyx clothed with stellate hairs, 1 mm. high, indistinctly 4-lobed, corolla 2.5 mm. high, 4-lobed, glabrous outside, stamens long exserted, filaments smooth, anthers small, style exserted, very slightly exceeding the stamens, dilated at the top; fruit a berry, glabrous, 2 mm. in diam. (Chang. no. 103). Many species of the genus are difficult to distinguish from each other."